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# Socio-Behavioral Correlates of 6- to 11-year-old Offspring of Alcohol Consuming Parents

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# SOCIO-BEHAVIORAL CORRELATES OF 6- TO 11-YEAR-OLD OFFSPRING OF ALCOHOL CONSUMING PARENTS

by

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Finally, for my brother, alcohol, a sorrow-filled thank-you and a hopeful prayer that we humans will one by one return alcohol to the proper uses for which it was intended and stop misusing and abusing alcohol and through it ourselves, our children, and our generations to come.

Jan Garver Bacon

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# ABSTRACT

Socio-Behavioral Correlates of 6- to 11-year-old Offspring of Alcohol Consuming Parents

by

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There is a lack of simple random sample based research into whether there are social skill and behavior problem differences for six- to eleven-year-old boys and girls which correlate with rates of parental alcohol consumption, social sequelae of parental alcohol consumption, reported level of marital conflict, and extended family history of alcoholism.

This simple random sample study correlates the above variables with T scores on the behavior problem and social competence scales of the Achenbach Child Behavior Checklist and Child Behavior Checklist - Teacher's Report Form for six- to eleven-year-old children (N=100). Behavior problem scales include disorders of affect, thought, and conduct, and attentional problems. Social competence scales include measures of activity level, social involvement, and school performance and working hard, behaving appropriately, learning, and happiness at

school. Variables which demonstrate high correlations ($p \leq .05$) are also examined using multiple regression.

Both males and females are shown to be impacted both in magnitude and pervasiveness of effect. The single most affected dependent variable for both males and females is delinquent behaviors. Dad's score on the Michigan Alcoholism Screening Test is the independent variable that most frequently predicts the largest amount of variance in regression equations. (152 pages)

# CHAPTER I

## INTRODUCTION

Offspring of alcoholics are hypothesized to be at risk for a wide variety of behavioral, psycho-social, and addictive problems as a result of being born to and/or raised by alcoholic parents. Research into outcomes for Adult Children of Alcoholics (ACA's ) and Children of Alcoholism (CoA's) has often focused on existing treatment populations that are subdivided, ACA's vs non-ACA's, for purposes of comparison. Generalizations are then drawn from these research findings to the population of all ACA's and CoA's. Estimates of alcoholic persons who never seek treatment are as high as 90% (Newlon & Furrow, 1986). Social scientists writing for popular publication (Black, 1981) have suggested that there are several different personality styles for ACA's and CoA's. These personality styles are hypothesized to range from overtly problematic, through highly compliant, to highly achievement oriented. The suggestion has been made (Sedlacek, 1983; Black, 1979) that regardless of whether CoA's seek or are compelled to go for help they are still at risk. Werner (1986) found that certain early life events correlate with a reduced resilience for CoA's and result in a higher incidence of poor coping behavior, which in turn correlates with alcoholism later in life. If this is so, early identification of CoA's and preventive intervention is indicated. This requires early identification of alcoholic parents as well. There are some problems inherent to such identification.

Problem One: Identification of alcoholics is difficult with regard to definition and defensiveness. Accurate formal identification of alcoholics is problematic. This task is performed by persons in various roles and for different reasons. Alcoholic persons may not self-identify out of resistance to treatment, ignorance, inability to accurately perceive their own behavior, or fear of social or employment consequences.

Marital partners may be hesitant to identify alcoholics due to fear of potential physical, financial, social, and familial repercussions should their claim be made public. The refusal by children to label parental alcoholism may result from motives as diverse as fear, acceptance, and love. Employers may respond to company policy, legal concerns, social pressures, and work performance when considering whether or not to label a person an alcoholic.

Treatment professionals may use a manual (APA, 1987), inventory (Horn, Wanberg, & Foster, 1974), screening test (Selzer, 1971), anamnesis (Randels,Villeponteaux, Marco, Shaw, & McCurdy, 1982), or other methods for identifying alcoholics. They may also be reluctant to diagnose alcoholism due to cultural norms, admission policies, insurance coverage, stigmatization, and treatment concerns.

The present study neither requested nor required formal identification of subjects as alcoholics.

Problem Two: When researching early life effects on offspring, early identification of alcoholic parents is needed yet difficult, given the mean age at which alcoholism is first diagnosed.

Although there are exceptions to the rule, male alcoholics are reported to most often first seek or be sent for help while in their mid-30s. Female alcoholics, on the average, come a decade later (Hamilton & Volpe,1982/83). If diagnosis of the alcoholic parent is a prerequisite to identification of at-risk children and if diagnosis is not possible earlier than this, then early identification and intervention with CoA's is impossible.

For purposes of research the labeling of alcoholics has variously been tied to hospital admissions, police or court records, family member report, social service notes, composite completion of an alcoholism screening instrument, and self-report. Most of this research has been conducted post hoc with regard to time of diagnosis.

When comparison of treatment populations is the goal, such labeling is functional and acceptable. When early identification of an at-risk population is the goal, waiting for formal diagnosis of the alcoholic parent is not acceptable. To await formal labeling prior to intervention is to wait until after most of the salient effects on offspring have occurred prior to initiating any preventative efforts. Prior to formalization of the diagnosis of alcoholism the subject parents may, as is

characteristic of the illness, be very resistant to self-labeling. In addition, many of the subject parents will be younger than or in the extreme young range of the expected age for persons first seeking help for alcoholism. Any requirement for formal labeling of the alcoholic parent by self, spouse, or offspring may actually serve as a barrier to participation. For purposes of the current study no such formal labeling was required.

Rather than requiring a formal diagnosis of parental alcoholism the current study used an adapted version of the Michigan Alcohol Screening Test (MAST) (Appendix A). This test (Selzer, 1971) produces a numerical value from the weighted scoring of responses to questions about physical, legal, and social sequelae of alcohol consumption. The validity of this instrument for measuring the social sequelae of alcoholic behavior is discussed under Data and Instrumentation.

Problem Three: Random sampling is needed to get at the effects of parental alcohol consumption on children in the population at large.

Investigators in the area of outcomes for ACA's and CoA's often use matched samples from existing records of consecutive births (Streissguth, Barr, & Martin, 1983; Schulsinger, Knop, Goodwin, Teasdale, & Mikkelson, 1986; Cloninger, Bohman, & Sigvardsson, 1981; Werner, 1986; Schuckit, 1984b; Gabrielli, Mednick, Volavka, Pollock, Schulsinger, & Itii, 1982; Knop, Teasdale, Schulsinger, & Goodwin, 1985), adoptions (Goodwin, Schulsinger, Møller, Hermansen, Winokur, & Guze,1974; Goodwin, Schulsinger, Knop,

Mednick, & Guze, 1977a & b; Bohman, Sivardsson, & Cloninger, 1981; Goodwin, Schulsinger, Hermansen, Guze, & Winokur,1973; Cadoret, O'Gorman, Troughton, & Heywood , 1985), or treatment program hospitalizations (Kosten, Rounsaville, & Kleber,1985; Workman-Daniels & Hesselbrock, 1987; Merikangas, Weissman, Prusoff, Pauls & Leckman, 1985; Schuckit, Goodwin, & Winokur,1972). Matched samples allow for easy comparison with the accessible population but require further comparisons of the sample population with the target population. Even when such comparisons are accomplished they are not as effective as simple random sampling when making comparisons with the target population.

Less frequently, researchers have used within-program (Hennecke, 1984) or media-solicited volunteers (Clair & Genest, 1987) for their sample populations. As discussed by Borg and Gall (1983), volunteer sample populations may have traits that distinguish them from the target population.

By at least one estimate (Newlon & Furrow, 1986), 90% of all alcoholics never seek treatment. To draw or solicit sample subjects only from the 10% who seek treatment is to risk a serious bias in one's findings. Since the objective is to improve knowledge about the general population, a simple random sample is indicated; yet for time and cost containment reasons simple random or stratified random sampling techniques have rarely been used in ACA and CoA research (Barnes, 1984; Rouse, Waller, & Ewing, 1973; Barnes, Farrell, & Cairns, 1986).

Subjects in this study were selected by computer-generated random sample from lists of all 6- to 11-year-old children within a given public school system.

Problem Four: Potential subjects found through random sampling may refuse to participate.

One major obstacle to using the simple random sample technique is the potential for a high refusal rate. Knop, Teasdale, Schulsinger, and Goodwin (1985) produced a refusal rate of 29.4% on mailed surveys. Barnes, Farrell, and Cairns (1986) used a random-digit dialing-selection procedure followed by in-person interviews but did not report a refusal-to-participate rate. Rouse, Waller, and Ewing (1973) used a stratified random sample and contained the salient points of the study within an in-person general public health survey. They reported an 11% refusal rate.

The potential difficulty in obtaining a simple random sample with a low refusal rate has been addressed by Borg and Gall (1983, p. 259). They suggested that a refusal rate of up to 20% is not unusual and made suggestions for lowering the number of refusals. Their suggestions relate to keeping demands on the respondent to a minimum, informing the respondent of the purpose and importance of the research, getting a strong commitment from the respondent before beginning data collection, and maintaining frequent contact in the interim (if more than one session with the respondent is needed).

Each of these suggestions was followed in this study and the result was a very low rate of subject refusal.

Problem Five: 6-to11-year-old children are not the best source of judgment as to their own socio-behavioral functioning.

As mentioned previously the target population for this study was elementary-age school children in the general population (in this case an urban location in a non-urbanized surrounding).

Most studies of this age-group population of CoA's have been limited to physiological tests and unstandardized behavior observations. There are obvious problems involved in having young children answer socio-behavioral inventory questionnaires. They may not have sufficient receptive or expressive language competence to respond to questions. They also may not be able to accurately gauge their own socio-behavioral development as compared with other children of their age.

The present study used the Child Behavior Checklist (CBCL) (Achenbach , 1983), which has been standardized using parental responses to determine the social competence and behavior problems of their offspring. Most parent responders in this study were mothers. Additionally, this study used the Child Behavior Checklist - Teacher's Report Form (TRF) as a measure of child adaptive functioning and behavior problems

in the school setting. The CBCL and TRF are discussed under Data and Instrumentation.

Problem Six: Respondents may not accurately report their own or their spouses' alcohol-consuming behavior.

In addition to the previously discussed difficulty with getting respondents to admit to "alcoholism," there is a further challenge. Respondents may refuse to provide accurate information about their alcohol consumption. They may also be poor self-observers and not have an accurate memory of their alcohol consumption.

The present study asked parent respondents for information as to their own and their spouse's alcohol consumption in general. While false negatives might have occurred there did not appear to be a better method for getting the information, and there was precedence for successfully gathering such information. At least one previous study (Utah Department of Social Services, 1982) was successful in generating responses from this same general population on a comparable survey. Pokorny, Miller, and Kaplan (1971) showed support for the claim that subjects who are younger may respond with less resistance than their older counterparts to questions about alcohol consumption and therefore be more amenable to positive intervention. The present study used parent respondents who had 6- to 11-year-old offspring and were relatively young themselves.

The present study used certain design and interview methods in an effort to not only increase respondents but also to minimize false responses.

These methods included the following:

1) Appointments for interviews were arranged by telephone during daytime working hours when most respondents were expected to be females. Respondents were asked during the interview about their children, themselves, and their spouses and were assured that none of their responses would be released to anyone in any fashion that could be used to identify any member of their family.

2) The purpose and importance of the study were emphasized to and reviewed with each respondent prior to obtaining a commitment to participate by way of signature on an informed consent form (Appendix B).

3) In addition to giving information about the study the interviewer appealed to each informant to just say "pass" on any item they felt they could not answer with total candor for any reason. They were told they would not be asked any more questions about passed items and that in the study we could more easily account for "pass" answers than we could for false or misleading answers that were entered as if they were accurate.

4) The questionnaire (Appendix C) was arranged in such an order that crucial questions were embedded in an

overall progression from most neutral items to most intrusive items.

5) Each interview was designed for completion in a total of sixty minutes per parent and thirty minutes per teacher.

6) Precise appointment dates were set for each interview and when an appointment was missed or cancelled prompt rescheduling was accomplished by telephone call.

7) Students were used as assistant interviewers during parent interviews and only following several completed parent interviews were they allowed to do teacher interviews.

8) Subjects were advised that upon their request, and after the study was completed, they would be provided with a one- to two-page summary of the overall results of the study.

Use of the preceding methods was expected to decrease false negatives, as data gathering was conducted in a nonthreatening and professional manner.

This study focused on the following problem:

There is a lack of simple, random-sample based research into whether there are socio-behavioral differences for 6- to 11-year-old boys and girls that correlate with the social sequelae of their parents' alcohol consumption, reported level of marital conflict, and extended family history of alcoholism.

# CHAPTER II

## REVIEW OF LITERATURE

Alcoholism in the United States has been conservatively estimated to afflict more than 10 million persons. Survey results from the National Institute on Alcohol Abuse and Alcoholism (1982) found that one of five individuals interviewed reported someone close to them drinks too much. In an average neighborhood one out of six homes has an alcoholic family member. Other than the alcoholic, family members are most likely to be adversely effected by the negative results of this illness. In instances where certain sets of behavior are present, non-alcoholic family members can be said to be co-alcoholics or codependent (Wood, 1984).

All family members are affected by the alcoholic's illness. Children are especially vulnerable (Black, 1979). An adult may have emotional, financial, marital, or psychological difficulties in disconnecting from an alcoholic spouse. Yet, if they choose to do so, they can leave. For legal and developmental reasons children are not as able to leave. Even if they were able to leave the alcoholic home they would still carry with them whatever genetic loading, *in utero* effects on their neurological development and memories of the presence of an alcoholic parent they acquired from their family of origin. These are influences that time, separation, individuation, financial independence, and other distancing activities do not change. There is research support for how powerfully these

and other variables impact on early socio-behavioral development.

Including adults and children, there are more than twenty-eight million offspring of alcoholic parents (National Institute on Alcohol Abuse and Alcoholism, 1982). These persons (both male and female) are more likely to become alcoholics than are the offspring of non-alcoholics (Goodwin, 1985). Treatment approaches to the illness of alcoholism have for the most part been frustrated.

Research into outcomes for adult children (ACA's) and children (CoA's) of alcoholic parents has, for the most part, consisted of post-hoc, retrospective endeavors. Causal relations have not been explored. The focus has been on differences between populations of offspring of alcoholic parents and offspring of non-alcoholic parents. Within-population comparisons have also been made to see what familial, individual, environmental, and neurological differences affect outcomes in terms of alcoholism (onset, severity, incidence), and related social and psychological problems. Research in this area can be divided into several areas of inquiry including heritability, physiological effects, personality and affective disorders, socio-educational problems, and resilience of the ACA.

Heritability

Heritability has to do with whether there is some trait passed on from parent to child which predisposes the child toward becoming an alcoholic.

Recent researchers have looked for heritability in terms of biochemical differences that can be considered premorbid to alcoholism. This is different from seeking particular genetic material that causes alcoholism. Investigators have found support for the following heritability markers in offspring of alcoholics: higher levels of activity on electroencephalogram tests (Gabrielli, et al,1982; Begleiter, Porjesz, Bihari, & Kissin, 1984), higher levels of dehydrogenase and acetylaldehyde in the liver (Goodwin,1979), more stimulus-augmenting responses (a possible correlate of hyperactivity) (Hennecke, 1984), absence of allergic reactions to alcohol (Goodwin, 1979), poor habituation and lower arousal levels (Egger, Webb & Reynolds, 1978), and differences in blood levels of serotonin (Goodwin, 1979) and immunoreactive met enkephalin (Govoni, Bosio, Di Monda, Fazzari, Spano, & Trabucchi, 1983).

Mixed results have been produced regarding the heritability of childhood hyperactivity in offspring of alcoholics. Support comes from Bell and Cohen (1981). Nonsupport comes from Workman-Daniels and Hesselbrock (1987) and Tartar, Hegedus and Gavaler (1985).

Differences in alcohol elimination rates are not statistically significant when comparing CoA's and non-CoA's (Utne, Hansen, Winkler, & Schulsinger, 1977).

No differences in intellectual functioning were found by Workman-Daniels and Hesselbrock (1987), while Knop, Teasdale, Schulsinger and Goodwin (1985) found poorer verbal proficiency. A possible environmental effect was suggested.

In a small sample study Herman, Kirchner, Streissguth, and Little (1980) showed no difference in vigilance behavior between CoA's and non-CoA's. The investigators suggested a larger sample prior to accepting the results.

Twin studies (as reviewed by Goodwin,1985) showed mixed results as to identical- vs fraternal-twin ACA populations and their incidence of alcoholism. An early adoption study (Roe, 1944) found no difference in ACA's and non-ACA's in their early 20s with regard to their drinking behavior. Given that the sample size was small and that most male and female alcoholics first seek treatment between 30 and 40 and 40 and 50 years of age, respectively (Hamilton & Volpe, 1982/83), these results are not considered strong.

In a more recent adoption study into comparisons of ACA's with non-ACA's, Schuckit, Goodwin, and Winokur (1972) found support for heritability when using samples of half-siblings, some of whom were raised by their biological parent and some not. Without regard for the drinking vs nondrinking pattern of the adoptive father or the stepfather a higher

incidence of alcoholism was found among subjects whose biological fathers were alcoholic. Subsequent adoption studies supported the concept of heritability in that regardless who raises them, male ACA's have a 3-4 times higher rate of alcoholism and are more frequently depressed or sociopathic (Cadoret et al, 1985). Further research (Cadoret et al, 1985; Merikangas et al, 1985) has suggested that frequencies of alcoholism, depression, and sociopathy are specific and not interactive. That is, each of these three accounts only for its own next-generation incidence and not the incidence of the others. Female ACA's also have higher rates of alcoholism (Bohman, et al, 1981; Goodwin et al, 1977a, 1977b; Goodwin et al, 1974), though not as high as male ACA's.

Female ACA's are more likely to be depressed if raised by their drinking alcoholic parent than if raised in another home (Goodwin et al, 1977a). The latter finding supports the hypothesis that there is an environmental loading in addition to whatever heritability loading may be present.

Goodwin (1979) also reported that women and Orientals (as compared with males and non-Orientals, respectively) exhibit what he calls allergic reactions to alcohol. Women are more likely than comparison group males to be nauseated with less alcohol ingestion than it would take to approach intoxication. Both women and Orientals produce lower levels of dehydrogenase in the liver and experience flushing of the skin secondary to ingestion of small amounts of alcohol. Dehydrogenase is involved in the hepatic metabolism of acetyaldehyde (a toxic product of the breakdown of alcohol

in the liver). This reaction, which occurs as a result of absence or a lower level of dehydrogenase, is comparable to what occurs when subjects on disulfiram (Antabuse) ingest alcohol. Disulfiram interrupts the metabolism of acetylaldehyde.

Physiological Effects

Physiological effects are the results of human prenatal maternal consumption patterns and, in at least one animal study (Buckalew, 1978), the neonatal ingestion of breast milk from alcohol-consuming mother mice.

Fetal alcohol syndrome (Robinson, 1977) is within the physiological area of concern. This syndrome includes a range of specific physiological outcomes for CoA's. Microcephalus, smaller birth weight, slower *in utero* and postnatal growth, structural skull and facial differences, epicanthic folds, ear location differences, and a higher infant mortality rate are only a few of the known fetal alcohol syndrome outcomes. Even in the absence of a full fetal alcohol syndrome finding, research shows a higher incidence of these individual differences for CoA's who are born to alcohol-consuming mothers. Some of these difficulties respond to remediation. Staisey and Fried (1983) found that muscle-tone deficiencies in CoA's frequently can be reversed over the first month of life. Low birth weight is not always remediable (Pytkowicz, 1977). Neural and skeletal-structural differences and, of course, mortality are not as responsive.

Personality and Affective Disorders

Outcomes of personality and affective disorders have been quite varied. Research has both supported and failed to support the concurrence of these disorders with alcoholism. It has been postulated that alcoholism and mental illness interact and that parental alcoholism predisposes offspring to develop not only alcoholism but also other psychosocial disorders.

Sedlacek (1983) postulated that offspring of alcoholics are at risk for "intrapsychic addiction." His idea is that a person who has an intrapsychic addiction problem can be defined as struggling with a pattern of thinking and behaving that is characterized by self-defeating and compulsive qualities. Sedlacek stated that this differs from the old moralistic approach in which the addicted person is accused of a lack of will. Instead, the deficit is seen as a disability or malfunctioning of the will, which makes more difficult if not impossible the selection of healthy choices for self and others in the ACA's environment. Given this hypothesis as to the generalizability of intrapsychic addiction, merely advocating abstinence from the addicting substance (i.e., alcohol) is not judged to be the elegant solution. The style of interaction rather than the object of the compulsion is the intervention target. A person with an intrapsychic addiction problem could be addicted to compulsive housecleaning, eating, working, reading, pornography, sex, gambling, alcohol, drugs, or any of a number of socially productive or nonproductive activities.

Research has not focused on such a broad understanding of the ACA's outcomes. Rather, the focus has been on correlations between certain alcoholic parentage and specific categories of personality and affective disorders.

Merikangas, Weissman, Prosoff, Pauls, and Leckman (1985) studied clinical depressives with a secondary diagnosis of alcoholism and found no support for the idea that alcoholism and depression are different forms of the same illness. Goodwin, Schulsinger, Knop, Mednick, and Guze (1977a) found no differences in susceptibility to other forms of psychopathology in either male or female ACA's raised outside their biological home, though they did find a higher rate of depression in female ACA's raised by their biological parents. This suggests environmental rather than or in addition to heritability influences on depression.

In contrast, using consecutive admissions to an opioid-addiction treatment facility, Kosten, Rounsaville, and Kleber (1985) found that ACA's who were also in treatment for opioid addiction had a higher rate of depression and antisocial personality and when alcoholic experienced more severity and earlier onset of alcoholism than non-ACA's.

Using women patients who had been diagnosed with borderline personality disorder Loranger and Tulis (1985) found that one third had positive family histories of at least one alcoholic parent.

In a cohort of consecutive admissions to a Veterans Administration Hospital Alcohol Treatment Unit, Schuckit (1984a) found that ACA's were more likely than non-ACA's to have an earlier and more severe onset of alcoholism. He was interested in differences within the treatment population, and his work revealed such differences. Effectively, he supported the contention that of those individuals who are admitted for treatment to Veterans Administration Hospitals for treatment of alcoholism, those who have at least one alcoholic parent are more likely to have sought help for alcoholism at a younger age and to have experienced more severe symptoms overall than subjects from the same population with neither parent identified as an alcoholic. He also found a higher incidence of antisocial personality in ACA's than non-ACA's.

Given that a large proportion of alcoholics never seek treatment, sample populations drawn from clinical populations differ in at least one important way from the target population. They all sought or were coerced into treatment.

Use of consecutive births in cohort creation and subsequent criterion sample selection is quite common in ACA research and improves on the consecutive admissions criterion in that the sample is drawn from the population at large. Streissguth, Barr, and Martin (1983); Schulsinger, Knop, Goodwin, Teasdale, and Mikkelsen (1986); Cloninger, Bohman, and Sigvardsson (1981); Penick, Powell, Bingham, Liskow, Miller, and Read (1987); Werner (1986); Schuckit (1984a); Gabrielli, Mednick, Volavka, Pollack, Schulsinger, and Itii

(1982); and Knop, Teasdale, Schulsinger, and Goodwin (1985) used consecutive births in a given hospital or geographic location and followed this with selecting out sample populations based on criteria of parental alcoholism, parental abstinence, adoption, parental sociopathy, age at adoption, and/or other variables.

This method is effective when the task is identification of subgroups within a specific sample for comparison with each other. It is dependent upon accuracy of definitions. As discussed earlier, such definitions and the resultant labels may not be uniformly applied. Further, since dichotomous extremes are usually the criteria used for inclusion in the sample population, findings from these studies do not necessarily inform as to possible correlations at other points along the real continuum that has abstinence at one extreme and heavy consumption at the other. The problem comes with generalization to another population (i.e., all alcoholics in the general population or persons who drink heavily regardless of whether they seek treatment). In most of these studies no comparison is made of the sample populations with the general population or the population within the general public who is alcoholic.

Socioeducational Problems

This research focus has to do with the social functioning and academic achievement of ACA's and CoA's. The accessible populations and sampling procedures are roughly the same as in preceding studies. Findings of interest

include support for ACA's 1) selecting a mate based on either similarity or dissimilarity to their alcoholic parent (Hall, Hesselbrock, and Stabenau,1983), 2) having a behaviorally more disturbed educational experience while also exhibiting a lower level of verbal proficiency (Knop et al, 1985), 3) reporting more childhood stress and anger and less adaptive abilities (Rouse et al, 1973), and 4) having higher truancy and drop-out rates (Robins, West, Ratcliff, and Herjanic, 1977) when compared with non-ACA's. Again, these studies are routinely conducted using retrospective interviews with adults.

One study was found that involves CoA's who are also alcoholics (childhood onset). In this study Mitchell, Hong, and Corman (1979) interviewed children and their parents in the home. They found that alcoholic children of alcoholic parents experience a greater availability of alcohol in their family home; have more peer-group members who drink, and report feelings of alienation, depression, and isolation.

Resilience

In most of the above research the focus is on undesired outcomes for ACA's and CoA's. Some research has also addressed the issue of desired outcomes. All ACA's are not alcoholics, drug addicts, or compulsive gamblers. Clair and Genest (1987) showed that CoA families are more dysfunctional and engage in more avoidant coping behaviors than non-CoA controls. Despite the strength of their findings they advocated more research to discover how it is that a portion of CoA's do

not become alcoholics. Understanding how it is that certain offspring of alcoholics do not become alcoholics or otherwise destructively compulsive can be useful when working with at-risk persons and their parents.

Barnes, Farrell, and Cairns (1986) interviewed multiple family members selected by a random-digit dial-sampling method. The results of this study support the concept that both positive and negative styles of interaction with alcohol correlate with parent- modeled styles.

Barnes' earlier work (1984) used interviews following a sample generated by random-digit dial and found that ACA's who receive a high degree of parental nurturance are less likely to be involved in alcohol abuse and other problem behaviors. McCord (1983) reported that CoA's see self as "rejected" and yet are positively impacted by maternal self-confidence and education level.

In one of the few longitudinal studies concerned with outcomes for ACA's Werner (1986) followed a birth cohort of children from birth to age 18 in a relatively low-mobility population with a high incidence of parental alcoholism. She focused on early life events, individual CoA characteristics, and "resilience" outcomes. Resilience was understood as ability to "cope" with problems. El Guebaly and Offord (1977) have previously correlated coping skills with ability to choose to not consume alcohol. Werner's results show that CoA's who develope no serious coping problems by age 18 were seen as more "cuddly and affectionate" as babies, are of higher than

average intelligence, experienced fewer traumatic events (including parental conflict and/or divorce) during the first two years of life, and do not have a next younger sibling born within two years. She also found that females and the offspring of alcoholic fathers have lower rates of psychosocial problems in childhood and adolescence than males and offspring of alcoholic mothers.

## Conclusion

The preceding brief review is supportive of a multicausal understanding of alcoholism. In such a frame of reference early intervention is essential. CoA's are shown to be different from non-CoA's in certain ways that time and remedial intervention cannot change. Also, certain preventable life events have been shown to affect CoA outcomes. These findings suggest that differential responding by care providers along with active preventive education of parents is needed. Further correlational research into CoA's socio-behavioral styles, family history correlates, and parental social correlates on a continuum of alcohol consumption is indicated so as to clarify CoA prevention and intervention needs.

Random sampling of the target population rather than generalization from clinical or dichotomized populations is indicated as more informative as to characteristics of the CoA population premorbid to full demonstration of their parent(s)' alcoholism.

## Purpose

The purpose of this research was to add to the body of knowledge concerned with the offspring of alcohol-consuming parents. More particularly this study attempted to determine the extent to which familial history of alcoholism, parental alcohol-ingestion history, parental social sequelae of alcohol consumption, and family of origin events (birth, divorce, and conflict) correlate with socio-behavioral outcomes for 6- to 11-year-old children. The specific area of interest was the correlation of parental responses to the Michigan Alcohol Screening Test (MAST) (Selzer, 1971), and a brief family demographics and alcohol history interview (independent variables) with socio-behavioral variables of 6- to 11-year-old children as measured on the parent and teacher forms of the Child Behavior Checklist (CBCL) (Achenbach, 1983) and the Child Behavior Checklist- Teacher's Report Form (TRF) (Achenbach, 1984) (dependent variables).

## Objectives

The objectives of this research were as follows:

1. To determine whether 6- to 11-year-old children's scores on the CBCL and TRF change as their parents' scores change on the MAST changed.

2. To determine whether 6- to 11-year-old children's scores on the CBCL and TRF change depending on the number of first-degree alcoholic relatives reported in their parents' family history-interview.

3. To determine whether 6- to 11-year-old children's scores on the CBCL and TRF change depending on whether their early life included intrafamilial conflict and parental divorce.

4. To determine whether 6- to 11-year-old children's scores on the CBCL and TRF change as number of months to next younger sibling, IQ, attainment of developmental milestones, or cuddliness measures change.

5. To determine whether 6- to 11-year-old children's scores on the CBCL and TRF change as parental alcohol-consumption changes.

6. To determine whether the child's or parent's gender in each of the above instances affect the outcome.

7. To determine whether a subset of the above independent variables correlate with certain patterns of responding on the Child Behavior Checklist and Teacher's Report Form.

## Hypotheses

The working hypotheses for this study were as follows:

1. As their parents' scores on the Michigan Alcohol Screening Test increase, 6 to 11-year-old children's mean scores increase on the behavior problems scales and decrease on the social competence scales scores as produced on the CBCL and TRF profiles. T scores were used.

Note: On the behavior problems scales progressively higher scores that deviate from the mean are progressively more suggestive of pathology. On the social competence scales progressively lower scores that deviate from the mean are progressively more suggestive of pathology.

2. As the number of reported alcoholic first degree relatives of their parents increase, 6- to 11-year-old children's mean scores increase on the behavior problems scales and decrease on the social competence scales scores as produced on the CBCL and TRF profiles.

3. As their parents divorce and ratings of verbal and physical conflictedness increase, 6- to 11-year-old children's mean scores increase on the behavior problems scales and decrease on the social competence scales scores as produced on the CBCL and TRF profiles.

4. As the number of months to a next-younger sibling decrease, ratings of their IQ and cuddliness are lower, and they attain developmental milestones more slowly; 6- to 11-year-old children's mean scores increase on the behavior problems scales and decrease on the social competence scales scores as produced on the CBCL and TRF profiles.

5. As their parents drink more alcohol, 6- to 11-year-old children's mean scores increase on the behavior problems scales and decrease on the social competence scales scores as produced on the CBCL and TRF profiles.

6. There are gender-related differences on the CBCL and TRF such that male subjects score higher on behavior problem scales.

7. In regression analyses using the above independent variables there is a pattern of dependent variables on the CBCL and TRF that varies as the independent variables vary.

For the working purposes of this study each hypothesis is stated in the null form.

# CHAPTER III

# METHODOLOGY

## Procedures

In the original proposal, interview teams were to go to computer-generated randomly selected locations within the city of Logan, Utah. They were to knock on the door of the nearest residence to that location and request participation in the study. This method was tried for four hours without generating even one residence in which a 6- to11-year-old child resided. The following method was then adopted.

Following review of the proposal by the school district's research review committee, a listing by student name, address, phone number, and parents' names of all elementary-age students in the Logan City School District was obtained. Each student name was assigned a number. A computer-generated random sampling procedure selected 1,000 numbers from 0001 to 3100. Each number was selected totally independent of all other numbers selected. Numbers were called over a period of several weeks to request participation in the study. Each time calling was initiated this writer began calling numbers from the list in the order they were selected by the computer. Thus, numbers at the beginning of the list that resulted in no answer the first time or times they were called continued to have a chance at inclusion in the study. Phone calls were made using the following format for explaining the study and asking for participants:

Hello. My name is Jan Bacon. I am a doctoral student in the Department of Psychology at Utah State University. I am doing some important research, looking at social skills and behavior problems of children between six and eleven years of age.

I guess I should tell you how I got your name and number. I am also a parent of a child in Logan public schools and so I contacted all the PTA presidents for lists of all elementary age students in the Logan Public School District. My proposal was reviewed by the research committee of the school board. I then used a computer to pick names at random from that list. Your child's name, _____ , came up.

We are not asking for any contact with your child. What we are looking for are parents who would be willing to complete a one hour interview in which we ask questions about your child's social skills and behavior, some early life information, and a few family history questions. I do the interview with a female assistant interviewer.

In addition we are asking for permission to contact your child's teacher and ask him or her some of the same social skills and behavior questions we asked you. They do not get to see your answers. Finally we are asking for access to your child's school records for information about academic achievement.

All information gathered in this study is kept strictly confidential.

Do you have any questions?

Would you be willing to give us an hour of your time?

Of the first 106 persons to answer the phone, 102 said "yes" to participation. Two of the four initial refusals were without explanation. Two were with the explanation the parent was divorced, had little enough time with the children, and despite being interested in the study just could not afford the time. One "yes" respondent later called back to cancel due to being a colleague of this researcher and very busy. A second "yes" respondent declined to participate when, at the onset of the interview, the respondent was requested to sign an informed consent form. That individual was unwilling to "give up the right to sue" if unpleased with the study and would agree to sign only if we rewrote parts of the informed consent form. We respectfully declined and left. The remaining 100 "yes" respondents completed the interview and are included in the study. The result is a 5.7% refusal rate.

Each parent interview began with a detailed review of the Informed Consent and Release of Information form for parent respondents (Appendix B), which asks for permission to interview the child's teacher and to access school records for academic achievement scores. The parents were also asked if

they would like to receive a one- to two-page description of the overall results of the study after it was completed. All participant parents said yes to this question.

Following informed consent the Child Behavior Checklist (Achenbach, 1983) was administered, followed by the questionnaire (Appendix C) and the Michigan Alcoholism Screening Test (Selzer, 1971).

All parental interviews were conducted by this writer with a female undergraduate psychology or social work student as assistant interviewer. This writer asked all questions and recorded answers as the interview progressed. The assistant also recorded all responses as an inter-rater reliability check. The plan was to compare both records for a given interview and where differences arose to use averaging. As it turned out, by reviewing both records immediately following each interview it was possible to find the few differences and use memory to recall responses and correct discrepancies. Only three corrections were needed and were made by mutual consent. Most records were identical. Teachers were contacted by telephone following completion of parental interviews and given the following explanation of the study:

> Hello. My name is _____. I am an undergraduate psychology (or social work) student working on an important research project with Jan Bacon at Utah State University. He is a doctoral student in psychology who is studying social skills and behavior of 6- to 11-year-old children.

This study has been approved by the school district. _____, a student in your class was picked at random to be in this study. His mother/father has already been interviewed as part of this study and we have written consent from her/him to ask you to participate and to look at her/his school records.

What we are asking from you is about twenty minutes of your time in which two of us will come to the school and ask you questions from a standardized questionnaire. Most teachers who participate in this study will only be asked about one student. Occassionally two or rarely three will be selected from the same classroom.

Do you have any questions?

Will you let us interview you?

In addition to school district and parental consent to participate, each teacher's informed consent (Appendix D) was obtained prior to asking any research questions. One teacher did refuse to participate because of being too busy. That teacher team taught and the colleague was willing to participate. With that change, teacher responses were obtained for all one hundred subject children. All teacher participants wanted to receive the brief description of the results of the study.

Reliability checks were again conducted with two discrepancies detected and corrected.

Description of the Sample

Table 1 provides information on children in the study. Children in the study were those whose parent or parents consented to and completed a one-hour interview and gave permission for an interview with the child's teacher and for access to the child's school records. The child's teacher also consented to and completed a brief interview. The school, with the consent of the parent and the school district's research review committee, also allowed access to school records.

There were 58 male and 42 female subjects. Ninety-five mothers and 5 fathers were parental respondents. When the ages of male and female subjects were divided by age ("years old"), female subjects were seen to be fairly evenly distributed across the age divisions. No more than 21.5% or less than 14.3% were in each age group. The mean female subject age was 99 months. Male subjects were less evenly distributed. The largest male age group contained 24.2 %, while the smallest contained only 1.7%. The mean male subject age was 85 months,14 months younger than the mean female subject age.

Table 1

Sample Description

| Variable | | Males (N) | Females (N) | Total (N) |
|---|---|---|---|---|
| Parent gender | | | | |
| | Fathers | 03 | 02 | 05 |
| | Mothers | 55 | 40 | 95 |
| Subject age in months | | N (%) | N (%) | Total % |
| | 72-83 | 14 (24.1) | 08 (19.0) | 22 |
| | 84-95 | 12 (20.7) | 09 (21.5) | 21 |
| | 96-107 | 14 (24.2) | 07 (16.6) | 21 |
| | 108-119 | 09 (15.5) | 06 (14.3) | 15 |
| | 120-131 | 08 (13.8) | 06 (14.3) | 14 |
| | 132-143 | 01 (1.7) | 06 (14.3) | 07 |
| | Total | 58 (100.0) | 42 (100.0) | 100 |
| | Mean age: | 85 months | 99 months | |
| Father | | | | |
| | Drinks per month | N(%) | N(%) | |
| | Abstainer | 20 (34.5) | 16 (38.1) | 36 |
| | < 1 a month | 24 (41.4) | 12 (28.6) | 36 |
| | 1-12 a month | 07 (12.1) | 05 (11.9) | 12 |
| | 13-59 a month | 03 (5.2) | 04 (9.5) | 07 |
| | ≥ 60 a month | 04 (6.9) | 04 (9.5) | 08 |
| | Missing | | 01 (2.4) | 01 |
| | Total | 58 | 42 | 100 |
| Mother | | | | |
| | Drinks per month | N (%) | N(%) | |
| | Abstainer | 27 (46.6) | 17 (40.5) | 44 |
| | < 1 a month | 21 (36.2) | 14 (33.3) | 35 |
| | 1-12 a month | 07 (12.1) | 08 (19.0) | 15 |
| | 13-59 a month | 03 (5.2) | 02 (4.8) | 05 |
| | ≥ 60 a month | 00 (0.0) | 00 (0.0) | 00 |
| | Missing | | 01 (2.4) | 01 |
| | Total | 58 (100.0) | 42 (100.0) | 100 |

Alcohol consumption of male and female parents was classified on a range from abstainers ("Have you ever in your life consumed even one alcoholic beverage") through persons who consume < 1 drink per month, 1 - 12 drinks per month, 13 - 59 drinks per month, and ≥ 60 drinks per month. Thirty-six percent (n=36) of fathers and 44% (N=44) of mothers in the study were lifetime abstainers and 36% (N-24) of fathers and 35% (n=35) of mothers currently drank < 1 drink per month. This made for a total of 75.5% (n=151) of all parents who were either lifetime abstainers or minimal drinkers.

Light drinkers ((1-12 drinks per month) accounted for 12% (n=12) of fathers and 15% (n=15) of mothers, or 13.5% (n=27) of all parents in the study. Moderate drinkers (13-59 drinks per month) accounted for 07% (n=7) of fathers and 05% (n=5) of mothers, or 06% (n=12) of parents in the study. Heavy drinkers (≥ 60 drinks per month) accounted for 08% (n=8) of fathers and 00% (n=0) of mothers or 04% (n=8) of parents in the study. Missing data on one father and one mother accounted for 01% of the parents in the study.

Startup Provisions

For quality control and to prevent getting too far into the study with major design flaws, consultation with the committee chair was conducted following each of the first five interviews. As a result certain questions on the parent questionnaire were asked in a different order.

A major procedural error was discovered. That error involved the investigator not having received approval for teacher participation from the school district's research review committee. All interviews were stopped and only resumed after that approval was obtained.

Main Study

The investigator was one of the interviewers for every parent interview. As the investigator is male and the parent interviews were expected to produce a predominance of female respondents, the assistant interviewer was always a female. Due to time constraints, upper-division female undergraduate students in social work or psychology were used instead of the investigator's spouse as was originally proposed.

Each teacher interview was conducted by two upper division undergraduate students in social work or psychology. Using two interviewers also made possible inter-rater reliability checks. While much of the interview was structured (CBCL and MAST tests given orally), there was also a brief demographic interview which required interviewer recording. Parts of the MAST and CBCL also required query in response to certain subject answers. Both interviewers independently recorded all responses and responses on each instrument were compared immediately following each interview. When concensus could be reached differently recorded responses were to be corrected. In all three instances where recorded responses differed such consensus was reached.

Following each parent or teacher interview a brief note regarding the contact was recorded by each interviewer. These notes were to include compliant, angered, resistant, or cooperative attitudes or any casual comments the respondent made about the study or its purpose and in particular comments as to the interviewer's subjective estimate of the interview's validity. In instances where the occupant refused to participate nothing was recorded except the reason (if given) for refusing to participate in the study.

Each CBCL, TRF, and MAST protocol was scored and, along with questionnaire data, entered into the data file for this study. Once all data (parental and teacher) on a specific subject had been gathered, tallied, and entered into the data file, results were coded by number. Names and addresses were then separated from responses, and only the investigator had access to the codes for matching them.

There is a legal requirement for reporting suspected child abuse and neglect cases. As part of the informed consent form, each prospective respondent was advised of this requirement and the interviewers' compliance with the law. They were also advised that no items in the formal interview asked for reportable information.

Population and Sample

As mentioned above, the target population for this study was children and their parents in urban-non-urbanized settings in the United States. The accessible population was

Logan, Utah; one such setting in northern Utah. The sample consisted of respondents selected by simple random sample from a listing of all 6- to 11-year- old children in the school district. The sample digits were generated by computer.

Demographically, Logan is an "urban center in a non-urbanized setting" (U. S. Department of Commerce, 1982), which as of 1980 had a population of 26,844 persons in 5,945 families (average size 4.5 persons per family unit). At that time there were 1,797 children of 6- to 11-years of age. (From a review of the same study it can be seen that the younger age cohorts were progressively larger.) There were over 3,000 6- to 11-year-old children on the school district lists from which subjects for this study were drawn.

According to the Utah Department of Social Services (1982) Utah has less than half (30%) as many alcohol users per capita than the United States (75%) as a whole. The report uses the following criteria:

Abstainers = less than one drink per month

Light drinkers = one to 12 drinks per month

Moderate drinkers = 13-58 drinks per month

Heavy drinkers = 60 or more drinks per month

(No mention was made of 59 drinks per month or of how the above categories were established. For this study the

moderate-drinker category was changed to include 13-59 drinks per month.)

Given the preceding classifications, 70.6% of Utahns over 18 years of age are abstainers, 12.0% are light drinkers, 11.2% are moderate drinkers, and 6.2% are heavy drinkers.

Data and Instrumentation

The Child Behavior Checklist, the Michigan Alcohol Screening Test, and a questionnaire were administered to respondents selected by simple random sampling for location. Following this interview the Teacher's Reporting Form of the Child Behavior Checklist were administered to each child's school teacher.

The results of the demographic questions were used to compare the sample population with census data from the target population. The family history questions included parental report of the following items: 1) marital conflict, 2) age to the next younger sibling, 3) number of first-degree relatives (of the parents) who were alcoholic, 4) "cuddlability of the child" (Werner, 1986), and 5) intelligence level of the child. Total interview time with the parent was 60 minutes or less if one subject child were selected. This included 20 minutes to describe the study, answer questions, get signatures (informed consent and release of information for the child's teacher), and ask demographic and family history questions; 25 minutes for completion of the Child Behavior Checklist; and 15 minutes for completion of the Michigan

Alcoholism Screening Test. The MAST was given in a doubled format that asked questions about the interviewee and questions about the spouse. An additional 30 minutes was needed if an additional child were selected from the same family for completion of a second Child Behavior Checklist and release forms for the child's teacher. More than one child from the same family was included in the study only when they were selected, totally independently, by the same procedures as all other subjects.

The Child Behavior Checklist (CBCL) asks parental responses regarding their subject children. With adult subjects having another person respond about the identified subject's behavior and social skills would be considered a less than satisfactory method of gathering information. In the present study this is an asset. 6- to 11-year-old children can not be expected to read or utilize language at the level required for responding on the CBCL. Their potential for fatigue makes the hour-long interview unworkable. Since a measure of deviant behavior in each child was sought, the child was not considered to be the best source of information. It is unlikely that 6- to 11-year-old children can make the judgments as to how they compare with same-age peers and other siblings. Lastly, due to familial norms and their position of relative powerlessness within the family, children might be guarded in their responses both on standardized instruments and on the demographic portions of the interview.

The CBCL is comprised of 118 items asking about problem behaviors (three-point scoring system) and 20 items

asking about social competence (weighted scoring system). The CBCL's major contribution is an ability to distinguish children who have problems from children who do not have problems (Mitchell, 1985). The CBCL produces T scores on nine behavior problem scales and three social competence scales. Behavior problem overall scores and scale scores of >90 and >70 , respectively, and social competence overall and scale scores of <10 and <30, respectively, have been shown to be useful cutoff scores for differentiating between clinical and non-clinical populations.

Although reportedly for use with children from 4 through 16 years of age, normative populations have been used that go from 4 to 5, 6 to 11, and 12 to 16 years of age. These breaks are in response to developmental and parental influence differences.

Three types of reliability for the CBCL are reported (Achenbach, 1983). In a test of test-retest reliability, the CBCL was administered using a single interviewer who interviewed the same respondent mothers at one-week intervals. Since mothers of "referred children" are expected to report more deviation from the mean on initial interview and therefore more regression toward the mean on re-interview, the investigators used parents of non-referred children in Achenbach's (1983) study. The overall intraclass correlation coefficient (ICC) was computed from a one-way ANOVA and produced correlations of .952 (Behavior Problem Scales) and .996 (Social Competence Scales).

When a three-month interval was used the ICC's were .838 (BP) and .974 (SC). This suggests more variability on the behavior problem scales while supporting a claim of high test-retest reliability.

More discrete analysis of the test-retest changes was conducted using T tests and removal of the chance number of statistically significant findings. Using this method significant changes on retest occurred in a uniform pattern for unreferred subjects. On retest parents gave more favorable accounts on the Social Competence Scales and less negative accounts on the Behavior Problems Scales.

Longer-interval (6 and 18 month) test-retest studies show greater changes in these same directions. An additional finding was that longer-interval test-retest studies show higher correlations when using parent respondents than with child-care workers.

Some of the changes found over time may be accounted for by actual socio-behavioral change or parental tendencies to favorably view their own offspring. Even with such influences included, the CBCL demonstrates high reliability scores between parents and following brief periods of time (1 week and 3 months).

Inter-parent agreement has been computed and has produced ICC scores of .985 (BP) and .978 (SC). There were some pattern differences. Given these high overall correlations, Achenbach (1983) suggested variations between individual

parents regarding their own child are of more clinical import than they are concerns for the overall reliability of the instrument.

Although much of the CBCL is routine and non-interpretive, there are a few items that require inquiry and interviewer judgment. Looking at inter-rater reliability and using three interviewers and matched triads of subject children, ICC's of .959 (BP) and .927 (SC) were obtained.

Validity on the CBCL is concerned with whether this test is able to identify those children who need help for socio-behavioral problems. To this end Achenbach (1983) reported that 116 of the behavior problem items and all 20 of the social competence items have been shown (independent of the CBCL proper) to be associated with mental health services-referred status.

In addition to being useful for clinical identification of specific behavioral types, Achenbach suggested that the CBCL's total behavior problems score can be seen as analogous to a full-scale score on a general intelligence test. He also saw the individual behavior problem scale scores as comparable to the subtest scores on such an intelligence test. To that end the CBCL has been compared with other behavior checklists and found to correlate significantly ($p = .05$ or better) with regard to overall and subtest scores in 60 of 63 comparisons.

Using these findings as evidence of construct validity Achenbach (p. 70) stated:

> Correlations between the total CBCL behavior problem score and total scores on other widely used parent rating forms are as high as those typically found between tests of general intelligence, while correlations between profile scales and the scales of the other rating forms are in the range often found among the subsets of different intelligence tests.

In terms of criterion-related validity, Achenbach (1983) reported a higher magnitude of effect from Socioeconomic Status (SES) than from race or age within sex/age groups. Still, none of these (including SES) even approach the effect size that he reports (significant at the $p < .001$ level) between demographically matched groups of referred vs nonreferred children.

One criticism of the CBCL has been the use of parental report without another source of supporting data. Achenbach disavowed diagnostic use of the CBCL without other supporting data. Still, in response to the criticism the Teacher's Report Form (TRF) variations on the CBCL have been devised. The TRF is useful for corroborative purposes and to give a more specific reference as to in-school behavior. Most of the items on the TRF are the same as those on the CBCL (parental form), and so cross reference is possible.

In summary, both of the reviews in the Mental Measurement Yearbook (Mitchell, 1985) were highly favorable of the Child Behavior Checklist, describing it as "one of the

better checklists currently available" and "one of the best standardized instruments of its kind."

The Michigan Alcohol Screening Test (MAST) (Selzer, 1971) is an easy-to-administer-24-item questionnaire that produces a measure of lifetime-accumulated problems that have been shown empirically to occur in concert with excessive drinking. In the present study the MAST was administered to respondents who were asked to answer for self and for spouse. Most parental respondents are mothers (n=95). Given that the mean incidence of alcohol consumption is higher in males than females and that resistence to accurate self-reporting of alcohol consumption is a problem in treatment as well as in research, the confidential administration of the MAST test to the female spouse is believed to augur more favorably for accurate reporting than does seeking both parties' reports on self only.

Items on the MAST are differentially weighted such that events that correlate more heavily with alcoholism (like attending a meeting of Alcoholics Anonymous) receive more points than those that have been shown to have less predictive power (like "ever" feeling bad about drinking).

The simplicity of this instrument makes for a quick administration (15 minutes or less) and has contributed to its use in a number of settings. Zung (1984) reported use of the MAST to identify problem drinkers from among Driving While Intoxicated (DWI) offenders. This use was predicated on Zung's review of several studies of the MAST across several clinical and nonclinical populations and settings, which showed the

MAST to be between 80 and 100 % accurate in detecting alcohol misuse.

In two studies where the MAST find rate for alcohol abusing persons was 100%, concurrent psychiatric evaluations (Moore, 1972) and administration of the MacAndrew Alcoholism Scale (Friedrich & Loftsgard, 1978) were less successful (78 and 79%, respectively).

Like the CBCL, the MAST is presented as a screening instrument. It uses cutoff values for no problem shown (<4), equivocal as to existence of an alcohol problem (4), and probable diagnosis of alcoholism (>4) and has been criticized for both false positives and false negatives. Yet, in a screening instrument it is appropriate for false positives to be found. The false negatives may be tallied to defensiveness of the alcoholic respondent and can be reduced by having a spouse respondent rather than or in addition to the subject alcoholic.

The MAST is not to be used diagnostically without the inclusion of a thorough history including other family members as informants. For purposes of this study the items on the MAST test served as a cumulative list of sequelae of alcohol consumption that were tallied with weighted scores and used as a continuous variable. The question is whether, as 6- to 11-year-old children's parents' histories included more of these events, the children evidenced more difficulties as shown on standardized measures of behavior problems and social competence.

Analysis

Scores from the CBCL, TRF, MAST and family history questionnaire were computed and subjected to statistical analysis. In the case of the CBCL and TRF, raw scores were converted to T scores. On the Michigan Alcohol Screening Test the overall weighted score as computed was used. Family history questionnaire items were scored as continuous variables on a five point scale.

Each independent variable was selected based on previous research and was correlated with each dependent variable. Correlations were also produced between independent variables and selected other independent variables when they were expected to intercorrelate and to attain significance on the same set of dependent variables. Despite the large number of correlations produced, the fact that significant correlation levels were attained with a consistent, and expected, set of dependent variables lessens the risk that the findings shown in this study are random statistical artifacts.

Product moment correlation (r) was used for comparing the continuous variables within the hypotheses stated above. This statistic is useful in comparing two continuous variables to determine the extent to which change in one variable correlates with change in another variable. Correlational analysis of interviewer notes on validity was also performed.

Meta-variables were created when sets of independent variables that measure similar events were highly intercorrelated and predicted a similar set of dependent variables. Multiple regression equations were produced for independent meta-variables and independent variables not incorporated into meta-variables.

# CHAPTER IV

# RESULTS

## Analysis of the Data

Analysis of the data obtained from the parent and teacher interviews was performed in stages. In the first stage Pearson correlation coefficients were computed for each independent variable (Table 2) with each dependent variable (Table 3) and with each other independent variable.

When two or more independent variables 1) appeared to measure the same effect, 2) strongly correlated with one another, and 3) strongly correlated with the same dependent variables they were combined into meta-variables. The mean of its component independent variables became the value for each meta-variable. Pearson correlations were computed again using these meta-variables.

The creation of meta-variables continued until no more sets of independent variables met the three criteria (above) for combination. When no further combination into meta-variables was possible regression analysis was conducted.

Regression analysis was conducted using stepwise method with two parameters. For a variable to be added to the regression equation it had to have a PIN or p value $\leq$ .050 and a tolerance value $\leq$ 0.0001. Mean substitution was used for missing data.

Table 2

## Independent Variables

Number of months to next sibling's birth
Attainment of developmental milestones
Parental estimate of child's early life intellectual functioning
Parental report of child's early life "cuddliness"
Parental "verbal conflictedness" during child's early life
Parental "physical conflictedness" during child's early life
Parental marital separation during child's early life
Parental "divorce" during child's early life
Mom's prepregnancy drinking
Mom's first trimester drinking
Mom's second trimester drinking
Mom's third trimester drinking
Mom's drinking first three months postpartum
Mom's drinking second three months postpartum
Mom's drinking third three months postpartum
Mom's drinking fourth three months postpartum
Mom's average drinking two years post partum
Mom's drinking now
Mom's alcoholic first degree relatives
Dad's prepregnancy drinking
Dad's average drinking two years post partum
Dad's drinking now
Dad's alcoholic first degree relatives
Mom's MAST score
Dad's MAST score

TABLE 2

Independent Variables (cont.)

Meta-variables

Mom's alcohol consumption

Dad's alcohol consumption

Measure of familial conflictedness.

Table 3

Dependent Variables

| Males | Females |
|---|---|
| CBCL | |
| Social competence | |
| Activities | Activities |
| Social | Social |
| School | School |
| Social competence sum | Social competence sum |
| Behavior Problems | |
| Schizoid or anxious | Depressed |
| Depressed | Social withdrawal |
| Uncommunicative | Somatic complaints |
| Obsessive-compulsive | Schizoid-obsessive |
| Somatic complaints | Hyperactive |
| Social withdrawal | Sex problems |
| Hyperactive | Delinquent |
| Aggressive | Aggressive |
| Delinquent | Cruel |
| Problems not listed elsewhere | Problems not listed elsewhere |
| Internalizing | Internalizing |
| Externalizing | Externalizing |
| Behavior problems sum | Behavior problems sum |

TABLE 3

Dependent Variables (cont.)

| Males | Females |
|---|---|
| | TRF |
| | Adaptive Functioning (at school) |
| Average adaptive behavior | Average adaptive behavior |
| Working hard | Working hard |
| Behaving appropriately | Behaving appropriately |
| Learning | Learning |
| Happy | Happy |
| Adaptive functioning sum | Adaptive functioning sum |
| | Behavior problems (at school) |
| Anxious | Anxious |
| Social withdrawal | Social withdrawal |
| Unpopular | Depressed |
| Self destructive | Unpopular |
| Obsessive-compulsive | Self destructive |
| Inattentive | Inattentive |
| Nervous-overactive | Nervous-overactive |
| Aggressive | Aggressive |
| Problems not listed elsewhere | Problems not listed elsewhere |
| Internalizing | Internalizing |
| Externalizing | Externalizing |
| Sum of behavior problems | Sum of behavior problems |

Originally the plan had been to use canonical correlation to determine which set of predictor variables (MAST scores, early life events, number of first degree relatives who are alcoholics,...) predicts which set of criterion variables (CBCL and TRF scores). After further consideration regression analysis was used for greater utility and replicability. Also, and perhaps more importantly, regression analysis just as effectively addresses the hypotheses of this study.

Dependent Variables

There were 35 dependent variables in this study (Table 3). They were the behavior problems (13 scales) and social competence scales (4) from the Child Behavior Checklist (Achenbach, 1983) and the behavior problems (12) and adaptive functioning scales (6) from it's companion instrument, the Teacher's Report Form (Achenbach, 1984). With the exception of one "other problems" item on each of the Child Behavior Checklist and the Teacher's Report Form, all scales were presented as T scores. The "other problems" items were simple tallies of non-scaled items.

The activities scale on the Child Behavior Checklist is a measure of the number of sport, nonsport, and job activities the child is involved in and is combined with a rating of the amount of time and degree of skill he or she demonstrates in each area.

The social scale measures the number of organizations and friends the child has and how frequently and how well the child interacts in such settings. It also includes how well the child behaves when alone.

On the school scale the child's general performance in school is rated and combined with information about being in a special class, having repeated a grade, and general school behavior problems.

The activities, social, and school scales of the Child Behavior Checklist are then combined into a social competence sum score. Behavior problems scales are the product of parental (or teacher) responses when given a statement about the subject child and asked to respond either "0 = Not true (as far as you know), 1 = Somewhat or sometimes true", or "2 = Very true or often true." The numerical values are then tallied according to which scale they load into, and the resultant tallies are transformed into T scores.

The Child Behavior Checklist and Teacher's Report Form are empirically derived instruments. As a result, the behavior problem scales generated for male and female subjects were different. That is, as constellations of problem items were grouped together to form problem scales the resulting sets were different for males and females, hence the differences in male and female behavior problem variables (Table 3).

Nine CBCL behavior problem scales for males were used in this study. They are (in order) schizoid or anxious, depressed, uncommunicative, obsessive-compulsive, somatic complaints, social withdrawal, hyperactive, aggressive, and delinquent. The nine CBCL behavior problem scales for females are (in order) depressed, social withdrawal, somatic complaints, schizoid- obsessive, hyperactive, sex problems, delinquent, aggressive, and cruel.

The parent was asked to list any other behavior problems not mentioned in the interview. These problems not listed elsewhere were tallied and not converted to T scores.

The internalizing scale is a broad-band scale that measures fearful, inhibited, and overcontrolled subject behaviors in contrast to the externalizing (broad-band) scale which measures aggressive, uninhibited and undercontrolled subject behaviors.

On the Teacher's Report Form, a measure of adaptive behavior at school of the subject child is generated. Also, measures of working hard at school, behaving appropriately at school, learning at school, happy at school, and adaptive functioning sum are produced.

The behavior problem scales on the Teacher's Report Form are also different by gender. The school behavior problem scales for males are anxious, social withdrawal, unpopular, self destructive, obsessive-compulsive, inattentive, nervous-overactive, and aggressive. The school behavior

problems scales for females are anxious, social withdrawal, depressed, unpopular, self destructive, inattentive, nervous-overactive, and aggressive.

The Teacher's Report Form also produces school problems not listed elsewhere, internalizing at school, externalizing at school, and sum of school behavior problems scales.

Independent Variables

Values on 25 independent variables were produced from two parts of the parent interview. Twenty-three of these items were imbedded within a 35 item researcher-generated questionnaire (Appendix C). Twenty-one of those 23 items requested parental ratings on a five-point scale about variables believed to impact on children's social skills and behavior problems. In converting to data-values items from five-point scales were assigned values one through five.

The remaining two of those 23 items requested information about the subject child's familial loading for alcoholism. When computing values for the number of paternal or maternal relatives who were identified as alcoholics a cell system was used. Seven cells were created:

1) Parent and his or her biological siblings,

2) Parent's mother and her biological siblings,

3) Parent's father and his biological siblings,

4) Parent's paternal grandmother,

5) Parent's paternal grandfather.

6) Parent's maternal grandmother,

7) Parent's maternal grandfather.

A point was added for each cell in which there was at least one identified alcoholic. No additional points were given for additional alcoholics within the same cell. The maximum point value for each side of the family was seven. The intent was to minimize the numerical loading that large sibling cohorts would generate for some subjects compared with other subjects who have no siblings.

The last two independent variables were mothers' and fathers' total scores on the Michigan Alcoholism Screening Test (MAST) (Selzer, 1971).

Correlation Results

Each independent variable was correlated with each CBCL and each TRF dependent variable. One-tailed T tests were used, as each variable had been selected based on prior research, and directionality was anticipated. Correlations for male and female subjects that attained the T significance level: $p \leq .10$ were retained for first level analysis. This generous significance value was used at the first stage of analysis only to find suggestions for future research. When forming meta-

variables and when performing regression analysis a more stringent T-significance level was used: $p \leq .05$.

For male subjects, as can be seen in Table 4, the number of months to next sibling's birth produced only minor correlations with T scores on scales of the Child Behavior Checklist and Teacher's Report Form. Early attainment of developmental milestones did correlate with lower scores on some behavior problem scales on the Child Behavior Checklist. The strongest correlation ($t = -.30$, $p = .010$) was with the delinquent scale.

Table 4 also shows that increasingly higher parental estimations of male offspring's intellectual function during the first two years of life strongly positively correlate with depression scores for males. Also, that cuddliness does not correlate with many dependent variables for male subjects on the Child Behavior Checklist.

The number of months to the birth of a next younger sibling produces only minor correlations for female subjects. Early attainment of developmental milestones strongly correlates with quality of participation in social activities and mildly correlates with lower scores on some behavior problem scales for females. Table 4 also shows that increasingly higher parental estimation of their offspring's intellectual function during the first two years of life strongly positively correlated with the Child Behavior Checklist school social competence scores for females. Also, cuddliness did not correlate with many of the dependent variables on the Child Behavior

Table 4

## Correlation Matrix: Early Life Variables.

1 = # months to next sibling's birth, 2 = attainment of developmental milestones, 3 = parental estimate of child's IQ, 4 = rating of child's early life cuddliness.

| | Independent variables | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Males (N = 58) | | | | Females (N = 42) | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Dependent variables | | | | | | | | |
| CBCL | | | | | | | | |
| Activities | | | | | | .36*** | | |
| Social | | | | | .21* | | | |
| School | | | | | -.22* | | .36*** | |
| Social competence sum | | | | | .21* | | .24* | |
| Schizoid or anxious | | | .18* | | | | | |
| Depressed | | | .33*** | | | -.22* | | |
| Uncommunicative | | | .27** | | | | | |
| Obsessive-compulsive | .18* | -.23** | | | | | | |
| Schizoid-obsessive | | | | | | -.26** | | |
| Somatic complaints | | | .20* | | | | | |
| Social withdrawal | | | | .19* | | | -.23* | |
| Sex problems | | | | | | -.21* | | |
| Aggressive | | -.24** | | | | -.28** | | |
| Delinquent | | -.30*** | | | | | | |
| Cruel | | | | | | -.26* | | -.30** |
| Problems not listed elsewhere | .20* | | .21* | -.21* | | -.34** | | |
| Internalizing | | | .33*** | | | -.23* | | |
| Externalizing | | -.19* | .26** | | | | | |
| Behavior problems sum | | | .24** | | | -.23* | | |
| TRF (at school) | | | | | | | | |
| Average adaptive behavior | | | | | | | .29** | |

Table 4

Correlation Matrix: Early Life Variables. (cont.)

1 = # months to next sibling's birth, 2 = attainment of developmental milestones, 3 = parental estimate of child's IQ, 4 = rating of child's early life cuddliness.

| | Independent variables | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Males (N = 58) | | | | Females (N = 42) | | | |
| Dependent variables | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| TRF (at school) (cont.) | | | | | | | | |
| Working hard | | | | | -.25* | | | |
| Behaving appropriately | | | | | | -.25* | | |
| Learning | | | | | -.20* | | | |
| Happy | | -.18* | | | | | | |
| Adaptive functioning sum | | | | | -.22* | | | |
| Anxious | | | .22* | | | | | |
| Social withdrawal | | | .21* | | | | -.26** | |
| Unpopular | -.19* | | | | | | | |
| Self destructive | | | .23** | | | | | .30** |
| Obsessive-compulsive | | | .33*** | | | | | |
| Inattentive | | | .21* | | | | | .27** |
| Nervous-overactive | | | .26** | | | | | .35** |
| Aggressive | | | | -.18* | | | | .20* |
| Problems not listed elsewhere | | | | .19* | | | | .36*** |
| Internalizing | | | .24** | | | | | |
| Externalizing | | | .26** | | | .21* | | .23* |
| Sum behavior problems | | | .27** | | | | | |

* P ≤ .10, ** p ≤ .05, *** p ≤ .01, **** p ≤ .001

(1 tailed)

Checklist for females, yet makes a number of contributions to Teacher's Report Form behavior problems for females. That is, as a girl was reported to be more cuddly she also had higher scores on scales measuring self-destructive behavior, inattentiveness, nervous-overactiveness, and to a lesser degree aggressiveness and externalization of problems.

Mothers' total scores (Table 5) on the Michigan Alcoholism Screening Test produce correlations on most scales for male subjects, yet few correlations, and then only weak ones, on Teacher's Report Form scales. The strongest correlations were on delinquent, internalizing, externalizing, and sum of behavior problems scales. Moderate correlations are also shown for depression, somatic complaints, aggressiveness, and other problems scales.

Fathers' total scores (Table 5) on the Michigan Alcoholism Screening Test produce even more and stronger correlations on most CBCL scales for male subjects. The single strongest correlation is on the delinquent scale. Moderate to strong correlations are also shown on 10 additional social competence and behavior problem Child Behavior Checklist scales and 10 additional adaptive skill and behavior problem Teacher's Report Form scales.

For male subjects the number of alcoholic maternal first degree relatives (Table 5) shows moderate positive correlations with obsessive-compulsive, aggressive at school, externalizing at school, and sum of school behavior problems variables; and moderate negative correlations with school

# Table 5

## Correlation Matrix: MAST Scores and First Degree Relatives

1 = mom's MAST score, 2 = dad's MAST score, 3 = mom's alcoholic first degree relatives, and 4 = dad's alcoholic first degree relatives.

| | Independent variables | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Males (N = 58) | | | | Females (N = 42) | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Dependent variables | | | | | | | | |
| CBCL | | | | | | | | |
| Activities | | | | | | | | -.34** |
| Social | | | | | -.23* | | | |
| School | | -.25** | -.30** | | | | | |
| Social competence sum | -.20* | -.22** | | | | | | |
| Schizoid or anxious | | .30** | | | | | | |
| Schizoid-obsessive | | | | | .32** | .35** | .44*** | |
| Depressed | .28** | .37*** | | | .20* | | .27** | |
| Uncommunicative | .20* | .30** | | | | | | |
| Obsessive-compulsive | | | .23** | | | | | |
| Somatic complaints | .25** | | | | | | | |
| Social withdrawal | .19* | .21* | | | | | .30** | |
| Sex Problems | | | | | .52**** | .50**** | .35** | .21* |
| Hyperactive | | .24** | | | | | .30** | |
| Aggressive | .30** | .26** | | .25** | .34** | .40*** | ,33** | .39*** |
| Delinquent | .32*** | .54**** | | .40**** | .35** | .50**** | .46**** | .32** |
| Cruel | | | | | | .23* | .33** | .24* |
| Problems not listed elsewhere | .29** | | | .28** | | | .28** | |
| Internalizing | .33*** | .31*** | | | | .21* | .23* | |
| Externalizing | .35*** | .38*** | | .27** | .33** | .40*** | .35** | .26** |
| Behavior problems sum. | .35*** | .37*** | | .22** | .29** | .31** | .33** | |

Table 5

Correlation Matrix: MAST Scores and First Degree Relatives (cont).

1 = mom's MAST score, 2 = dad's MAST score, 3 = mom's alcoholic first degree relatives, and 4 = dad's alcoholic first degree relatives.

| | Independent variables | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Males (N = 58) | | | | Females (N = 42) | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Dependent variables | | | | | | | | |
| TRF (at school) | | | | | | | | |
| Average adaptive behavior | | -.34*** | | | | -.22* | | -.23* |
| Working hard | | -.22* | | | -.37*** | -.21* | -.37*** | -.36*** |
| Behaving appropriately | | -.24** | | | -.32** | | -.22* | |
| Learning | | -.29** | | | -.29** | -.25* | -.28** | |
| Happy | | -.33*** | | | -.29** | | | |
| Adaptive functioning sum | | -.32*** | | | -.35** | -.23* | -.29** | -.23* |
| Anxious | | | .20* | | | | | |
| Social withdrawal | .18* | | | | .28** | .37*** | .44*** | |
| Unpopular | | | .20* | | | | .30** | |
| Depressed | | | | | | | .29** | |
| Self destructive | | .26** | | | | | | .27** |
| Inattentive | .18* | .27** | .21* | | | | | .26* |
| Nervous-overactive | | .23** | | | | | | |
| Aggressive | | .19** | .25** | | | | | |
| Problems not listed elsewhere | | | | | | | | .35** |
| Internalizing | | | | | | | .25* | |
| Externalizing | | .24** | .28** | | .22* | | .31** | |
| Sum behavior problems | | .18* | .29** | | | | .35** | |

* P ≤ .10, ** p ≤ .05, *** p ≤ .01, **** p ≤ .001 (1 tailed)

performance. For male subjects the number of alcoholic paternal first degree relatives shows moderate positive correlations with aggressive, problems not listed elsewhere, externalizing and behavior problems sum variables, and a very strong positive correlation with the delinquent variable.

Mothers' total scores on the Michigan Alcoholism Screening Test (Table 5) produce correlations on several CBCL scales for female subjects and on adaptive behavior scales of the Teacher's Report Form scales. The single strongest correlation for female subjects is on sex problems. Moderate correlations are also shown for schizoid- obsessive, delinquent, aggression, externalizing, and sum of behavior problem scales. Moderate to strong negative correlations are shown on the TRF scales measuring adaptive functioning for girls at school.

Fathers' total scores on the Michigan Alcoholism Screening Test (Table 5) produce the stronger correlations on several CBCL scales for female subjects. The strongest correlations for female subjects are on the sex problems and delinquency scales. Moderate to strong correlations for female subjects are also shown on four additional behavior problem scales and one TRF behavior problem scale.

For female subjects the number of alcoholic maternal first degree relatives shows moderate positive correlations with depressed, social withdrawal, hyperactive, sex problems, aggressive, cruel, problems not listed elsewhere, externalizing, behavior problems sum, depressed at school, unpopular at school, internalizing at school, and sum of school behavior

problems variables. Strong to very strong correlations are shown with schizoid-obsessive, delinquent, and social withdrawal at school variables. Moderate to strong negative correlations are shown with working hard at school, learning at school, and adaptive functioning sum variables. For female subjects the number of alcoholic paternal first degree relatives shows moderate to strong correlations with delinquent, aggressive, externalizing, and school problems not listed elsewhere, and moderate to strong negative correlations with activities and working hard at school variables.

Table 6 shows the correlations between three measures of parental conflictedness and the dependent variables on the Child Behavior Checklist and Teacher's Report Form.

While verbal conflictedness and physical conflictedness during the first two years of the male subject's life and parental divorce each show correlations on most scales of the Child Behavior Checklist, only parental divorce also correlates with a number of Teacher's Report Form scales. The strongest correlations for parental verbal conflict are with schizoid and anxious, depressed, uncommunicative, aggressive, and delinquent scales on the checklist and a negative correlation with happiness on the Teacher's Report From. Physical conflict shows very strong correlations with aggressive and delinquent scales. Parental divorce generates strong or very strong positive correlations with schizoid or anxious, hyperactive, delinquent, inattentive, nervous-overactive, aggressive, and externalizing scales; also strong negative

Table 6

## Correlation Matrix: Early Life Conflict

1 = Parental verbal conflictedness during subject's early life,
2 = Parental physical conflictedness during subject's early life, and
3 = parental divorce

| | Independent variables | | | | | |
|---|---|---|---|---|---|---|
| | Males (N = 58) | | | Females (N = 42) | | |
| | 1 | 2 | 3 | 1 | 2 | 3 |
| Dependent Variables CBCL | | | | | | |
| Social | | -.31*** | | | -.43*** | |
| School | | | -.32*** | | | |
| Social competence | | -.23** | -.22** | | -.31** | |
| Schizoid or anxious | .33*** | .30** | .36*** | | | |
| Schizoid-obsessive | | | | .33** | .37*** | .33** |
| Depressed | .40**** | .20* | .23** | | | .21* |
| Uncommunicative | .41**** | | | | | |
| Obsessive-compulsive | .26** | .25** | | | | |
| Somatic complaints | | .21* | .24** | | | |
| Social withdrawal | .29** | .28** | .24** | | | .26** |
| Sex problems | | | | .31** | .32** | .55**** |
| Hyperactive | .20* | .26** | .32*** | | | |
| Aggressive | .41**** | .45**** | .22** | | | .33** |
| Delinquent | .44**** | .40**** | .44**** | 26** | | .32** |
| Cruel | | | | | | .36** |
| Internalizing | .26** | | | | | |
| Externalizing | .25** | .20* | .24** | | | .25* |
| Behavior problems sum | .33*** | .23** | .24** | | | .22* |

## Table 6

## Correlation Matrix: Early Life Conflict (cont.)

1 = Parental verbal conflictedness during subject's early life,
2 = Parental physical conflictedness during subject's early life, and
3 = parental divorce

| | Independent variables | | | | | |
|---|---|---|---|---|---|---|
| | Males (N = 58) | | | Females (N = 42) | | |
| | 1 | 2 | 3 | 1 | 2 | 3 |
| Dependent Variables | | | | | | |
| TRF (at school) | | | | | | |
| Average adaptive behavior | | | -.43**** | | | |
| Working hard | | | -.20* | | | -.34** |
| Behaving appropriately | -.20* | | -.30** | -.21* | | |
| Learning | | | -.31** | -.25* | | -.33** |
| Happy | -.33*** | | -.39*** | -.32** | | -.35** |
| Adaptive functioning sum | | | -.36*** | -.24* | | -.33** |
| Social withdrawal | | | | | | .44*** |
| Unpopular | | | .20* | | | .27** |
| Self destructive | | | .24** | | | |
| Inattentive | | | .40**** | | | .25* |
| Nervous-overactive | | | .35*** | | | |
| Aggressive | .22* | .22* | .35*** | .22* | | .21* |
| Problems not listed elsewhere | | | .31** | | | .35** |
| Internalizing | | | .18* | | | |
| Externalizing | .17* | | .33*** | | | |
| Sum behavior problems | | | .31** | | | .26* |

* $p \leq .10$, ** $p \leq .05$, *** $p \leq .01$, **** $p \leq .001$ (1 tailed)

correlations with school performance, average adaptive behavior at school, happiness, and adaptive functioning sum scales.

For female subjects (Table 6) verbal conflict shows at best moderate positive correlations with schizoid-obsessive, sex problems, and delinquent scales and a moderate negative correlation with happiness. Physical conflictedness shows moderate and strong negative correlations with social competence sum and social scales and moderate and strong positive correlations with sex problems and schizoid obsessive scales. Parental divorce shows moderate to very strong positive correlations on six behavior problem scales, moderate negative correlations with three adaptive behavior scales, and positve moderate correlations on three teacher-reported behavior problem scales. Its strongest correlation is with sex problems.

Table 7 shows correlations for three measures of father's alcohol consumption and the dependent variables. It is notable that for male subjects almost all significant correlations are on the Child Behavior Checklist and positive correlations of moderate to very strong magnitude are shown by all three variables on scales measuring schizoid or anxious, obsessive-compulsive, and delinquent behaviors. The depression scale nearly meets this criterion as well.

## Table 7

## Correlation Matrix: Dad's Alcohol Consumption

1 = dad's prepregnancy drinking, 2 = dad's average drinking two year's postpartum, and 3 = dad's drinking now.

| | Independent variables | | | | | |
|---|---|---|---|---|---|---|
| | Males (N = 58) | | | Females (N = 42) | | |
| | 1 | 2 | 3 | 1 | 2 | 3 |
| Dependent variables | | | | | | |
| CBCL | | | | | | |
| Social | | -.19* | | | | |
| Schizoid or anxious | .30** | .22** | .36*** | | | |
| Schizoid or obsessive | | | | .25* | .21* | |
| Depressed | .27** | .21* | .32*** | | | |
| Uncommunicative | .21* | | .24** | | | |
| Obsessive-compulsive | .33*** | .26** | .30** | | | |
| Social withdrawal | | | .21* | | | |
| Sex problems | | | | .35** | .31** | .32** |
| Aggressive | .24** | .21* | .25** | .34** | .28** | .23* |
| Delinquent | .44**** | .45**** | .45**** | .33** | .32** | .30** |
| Internalizing | .19* | | .21* | | | |
| Externalizing | .22** | .21* | .23** | .35** | .29** | .24* |
| Behavior problems sum | .25** | .21* | .26** | .23* | | |
| TRF (at school) | | | | | | |
| Working hard | | | | -.30** | -.33** | -.35** |
| Behaving appropriately | | | | -.27** | -.33** | -.35** |
| Learning | | -.22* | | -.28* | -.30** | -.33** |
| Happy | | | | -.22* | -.27** | -.27** |
| Adaptive functioning | | | | -.32** | -.36** | -.38*** |
| Social withdrawal | | | | | | .21* |
| Inattentive | | | | | | .22* |
| Problems not listed elsewhere | | | | | .23* | .24* |

* P ≤ .10, ** p ≤ .05, *** p ≤ .01, **** p ≤ .001 (1 tailed)

Females produced moderate positive correlations with all three independent variables on sex problems and delinquent scales and at least moderate negative correlations with all three independent variables on working hard, behaving appropriately, learning, and adaptive functioning sum scales of the Teacher's Reporting Form. Aggressive, externalizing, and happiness scales almost attain the same criterion.

Table 8 shows correlations for male subjects between 10 measures of mothers' alcohol consumption and dependent variables. Obsessive-compulsive, social withdrawal, delinquent, and behavior problems sum scales all show at least moderate correlations across most of the 10 measures. Postpartum maternal drinking correlates moderately with, externalizing, and problems not listed elsewhere scales on the Teacher's Report Form.

As can be seen in Table 9 female subjects are not so pervasively affected by maternal alcohol consumption. The only moderate finding was a negative correlation between mothers' postpartum drinking the daughter's social competence scores. There was also an unexpected mild to moderate negative correlation between mother's postpartum drinking and daughter's hyperactive scale.

Table 8

## Correlation Matrix (Males): Mom's Alcohol Consumption

1 = mom's prepregnancy drinking, 2 = mom's first trimester drinking, 3 = mom's second trimester drinking, 4 = mom's third trimester drinking, 5 = mom's drinking first three months postpartum, 6 = mom's drinking second three months postpartum, 7 = mom's drinking third three months postpartum, 8 = mom's drinking fourth three months postpartum, 9 = mom's average drinking two years postpartum, 10 = mom's drinking now. (N=58)

| | Independent variables | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Dependent Variables | | | | | | | | | | |
| CBCL | | | | | | | | | | |
| Activities | | -.22* | -.30** | -.25** | | | | | | -.26** |
| School | | | | | | | | | | -.19* |
| Schizoid or anxious | | | | .25** | | | | | | |
| Depressed | | .20* | .22* | .21* | .19* | .19* | .19* | .19* | | .21* |
| Obsessive-compulsive | .27** | .27** | .31*** | .29** | .24** | .24** | .24** | .24** | .27** | .32*** |
| Social withdrawal | | .21* | .19* | .28** | .24** | .24** | .24** | .24** | | .19* |
| Hyperactive | | | | .21* | | | | | | .17* |
| Aggressive | .20* | .25** | .35*** | .24** | | | | | .20* | .29** |
| Delinquent | .32*** | .36*** | .45**** | .40**** | .27** | .27** | .27** | .27** | .35*** | .45**** |
| Problems not listed elsewhere | .27** | .28** | .35*** | .31*** | .18* | .18* | .18* | .18* | .26** | .29** |
| Internalizing | | | .18* | | | | | | | |
| Externalizing | | .19* | .28** | .20* | | | | | | .18* |
| Behavior problems sum | .21* | .29** | .34*** | .33*** | .24** | .24** | .24** | .24** | .21* | .28** |

Table 8

## Correlation Matrix (Males): Mom's Alcohol Consumption (cont.)

1 = mom's prepregnancy drinking, 2 = mom's first trimester drinking, 3 = mom's second trimester drinking, 4 = mom's third trimester drinking, 5 = mom's drinking first three months postpartum, 6 = mom's drinking second three months postpartum, 7 = mom's drinking third three months postpartum, 8 = mom's drinking fourth three months postpartum, 9 = mom's average drinking two years postpartum, 10 = mom's drinking now. (N=58)

| Dependent variables | Independent variables | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| TRF (at school) | | | | | | | | | | |
| Average adaptive behavior | | | | -.18* | | | | | -.17* | -.24** |
| Working hard | -.21* | | -.21* | -.25** | | | | | -.25** | -.27** |
| Behaving appropriately | -.21* | | | -.23** | | | | | -.26** | -.27** |
| Learning | -.18* | | | -.25** | | | | | -.22** | -.32*** |
| Happy | -.23** | -.19* | | -.27** | -.25** | -.25** | -.25** | -.25** | -.25** | -.27** |
| Adaptive functioning sum | -.24** | | -.19* | -.29** | | | | | -.29** | -.33*** |
| Social withdrawal | .21* | .24** | .19* | .29** | .27** | .27** | .27** | .27** | .22* | .21* |
| Unpopular | .23** | .23** | .19* | .30** | .22* | .22* | .22* | .22* | .24** | .20* |
| Self destructive | .18* | | | .23** | .18* | .18* | .18* | .18* | .21* | .29** |
| Obsessive-compulsive | .18* | | | .24** | | | | | .18* | |
| Inattentive | | | | .21* | | | | | .18* | .17* |
| Nervous-overactive | | | | .17* | | | | | | |
| Aggressive | .26** | .21* | .22** | .34*** | .22* | .22* | .22* | .22* | .34*** | .33*** |
| Problems not listed elsewhere | | | | .19* | | | | | | |
| Internalizing | | | | .19* | | | | | | |
| Externalizing | .28** | .23** | .25** | .35*** | .23** | .23** | .23** | .23** | .34*** | .35*** |
| Sum behavior problems | .29** | .26** | .25** | .37*** | .28** | .28** | .28** | .28** | .32*** | .32*** |

* $p \leq .10$, ** $p \leq .05$, *** $p \leq .01$, **** $p \leq .001$ (1 tailed)

## Table 9

## Correlation Matrix (Females): Mom's Alcohol Consumption

1 = mom's prepregnancy drinking, 2 = mom's first trimester drinking, 3 = mom's second trimester drinking, 4 = mom's third trimester drinking, 5 = mom's drinking first three months postpartum, 6 = mom's drinking second three months postpartum, 7 = mom's drinking third three months postpartum, 8 = mom's drinking fourth three months postpartum, 9 = mom's average drinking two years postpartum, 10 = mom's drinking now.
(N = 42)

| | Independent variables | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Dependent Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| CBCL | | | | | | | | | | |
| Activities | | | | | | | -.21* | -.21* | | |
| Social | | | | | -.28** | -.36** | -.34** | -.34** | | |
| School | | | | | | .22* | | | | .22* |
| Hyperactive | | | | | -.26** | -.27** | -.26* | -.26* | -.20* | -.22* |
| TRF (in school) | | | | | | | | | | |
| Behaving appropriately | -.22* | | | | | | | | | |

* P ≤ .10, ** p ≤ .05, *** p ≤ .01, **** p ≤ .001 (1 tailed)

Summary

Both male and female subjects' scores on the Child Behavior Checklist are most consistently and significantly correlated with father's alcohol consumption and father's Michigan Alcoholism Screening Test.

Early attainment of developmental milestones moderately lowers some behavior problem scores for males and females. The number of months to the birth of a next younger sibling and parental age at time of subject's birth rarely contribute for both male and female subjects.

Male subjects' scores on depressed, withdrawn, delinquent, happiness, and externalizing at school scales are affected by both parents' scores on the selected independent variables.

Male subjects's scores on schizoid or anxious and aggressive variables are affected by fathers' scores on the selected independent variables. Maternal alcohol consumption correlates with many more school-related scales than do paternal alcohol consumption rates.

Female subjects' scores on sex problems, delinquency, aggression, externalizing, working hard, behaving appropriately, learning, happiness, and adaptive functioning sum scales consistently correlate with fathers' alcohol consumption and Michigan Alcoholism Screening Test scores

and rarely correlate with mothers' alcohol consumption and Michigan Alcoholism Screening Test scores.

Meta-Variable Formation

So as to clarify which dependent variables are most frequently correlated with which independent variables a review was made of intercorrelations of independent variables that also have similar patterns of correlation with dependent variables. When significant intercorrelations ($p \leq .001$), predictive correlations, and conceptual similarity within a subset of independent variables were shown they were combined by averaging, and a meta-variable was created. Table 10 shows correlations between the resultant meta-variables and dependent variables.

For males the meta-variable conflict shows moderate to very strong positive correlations with schizoid or anxious, depression, uncommunicative, obsessive-compulsive, social withdrawal, hyperactive, aggressive, delinquent, internalizing, externalizing, behavior problems sum, and aggressive at school dependent variables. A moderate negative correlation with happiness at school is also shown. When physical and verbal conflictedness and divorce variables are combined to form the meta-variable conflict moderate to very strong correlations between divorce and three at school dependent variables are washed out. Those variables are self destructive, inattentive, and nervous-overactive.

Table 10

## Correlation Matrix for Meta Variables: Conflict, Dad's Drinking, and Mom's Drinking.

Compute: conflict = (verbal conflictedness + physical conflictedness + divorce) / 3
Compute: dad's drinking = (dad's drinking prepregnancy + dad's drinking two year average + dad's drinking average now ) / 3
Compute: mom's drinking = (mom's drinking prepregnancy + mom's drinking first trimester + mom's drinking second trimester + mom's drinking third trimester + mom's drinking first three months postpartum + mom's drinking second three months postpartum + mom's drinking third three months postpartum + mom's drinking fourth three months postpartum + mom's drinking two year average + mom's drinking average now) / 10

1 = conflict, 2 = dad's drinking, and 3 = mom's drinking.

| | Independent meta-variables | | | | | |
|---|---|---|---|---|---|---|
| | Males (N = 58) | | | Females (N = 42) | | |
| | 1 | 2 | 3 | 1 | 2 | 3 |
| Dependent variables CBCL | | | | | | |
| Activities | | | -.19* | | | |
| Social | | | | -.28** | | -.22* |
| Social competence sum | -.18* | | | -.21* | | |
| Schizoid or anxious | .41**** | .30** | | | | |
| Schizoid-obsessive | | | | .41*** | .21* | |
| Depressed | .33*** | .27** | .20* | | | |
| Uncommunicative | .29** | .21* | | | | |
| Obsessive-compulsive | .28** | .30** | .29** | | | |
| Somatic complaints | .21* | | | | | |
| Social withdrawal | .30** | | .22* | | | |
| Sex problems | | | | .45*** | .33** | |
| Hyperactive | .26** | | | | | -.23* |
| Aggressive | .45**** | .24** | .23** | .23* | .29** | |
| Delinquent | .51**** | .46**** | .36*** | .31** | .32** | |

Table 10

## Correlation Matrix for Meta Variables: Conflict, Dad's Drinking, and Mom's Drinking. (cont.)

Compute: conflict = (verbal conflictedness + physical conflictedness + divorce) / 3
Compute: dad's drinking = (dad's drinking prepregnancy + dad's drinking two year average + dad's drinking average now ) / 3
Compute: mom's drinking = (mom's drinking prepregnancy + mom's drinking first trimester + mom's drinking second trimester + mom's drinking third trimester + mom's drinking first three months postpartum + mom's drinking second three months postpartum + mom's drinking third three months postpartum + mom's drinking fourth three months postpartum + mom's drinking two year average + mom's drinking average now) / 10

1 = conflict, 2 = dad's drinking, and 3 = mom's drinking.

| | Independent meta-variables | | | | | |
|---|---|---|---|---|---|---|
| | Males (N = 58) | | | Females (N = 42) | | |
| | 1 | 2 | 3 | 1 | 2 | 3 |
| Dependent variables | | | | | | |
| CBCL (cont) | | | | | | |
| Problems not listed elsewhere | | | .26** | | | |
| Internalizing | .23** | .18* | | | | |
| Externalizing | .30** | .22** | | | .30** | |
| Behavior problems sum | .32*** | .24** | .27** | | | |
| TRF (in school) | | | | | | |
| Working hard | | | -.17* | -.26** | -.33** | |
| Behaving Appropriately | -.20* | | | -.22* | -.32** | |
| Learning | | | -.19* | -.28** | -.31** | |
| Happy | -.33*** | | -.25** | -.35** | -.25* | |
| Adaptive functioning sum | -.19* | | -.22* | -.30** | -.35** | |
| Social withdrawal | | | .25** | .21* | | |

Table 10

Correlation Matrix for Meta Variables: Conflict, Dad's Drinking, and Mom's Drinking. (cont.)

Compute: conflict = (verbal conflictedness + physical conflictedness + divorce) / 3
Compute: dad's drinking = (dad's drinking prepregnancy + dad's drinking two year average + dad's drinking average now ) / 3
Compute: mom's drinking = (mom's drinking prepregnancy + mom's drinking first trimester + mom's drinking second trimester + mom's drinking third trimester + mom's drinking first three months postpartum + mom's drinking second three months postpartum + mom's drinking third three months postpartum + mom's drinking fourth three months postpartum + mom's drinking two year average + mom's drinking average now) / 10

1 = conflict, 2 = dad's drinking, and 3 = mom's drinking.

| | Independent meta-variables | | | | | |
|---|---|---|---|---|---|---|
| | Males (N = 58) | | | Females (N = 42) | | |
| | 1 | 2 | 3 | 1 | 2 | 3 |
| Dependent variables | | | | | | |
| TRF (at school) (cont.) | | | | | | |
| Unpopular | | | .23** | | | |
| Self destructive | | | .21* | | | |
| Inattentive | | | | | | |
| Aggressive | .26** | | .27** | | | |
| Externalizing | .19* | | .29** | | | |
| Sum behavior problems | | | .31*** | | | |

* $p \leq .10$, ** $p \leq .05$, *** $p \leq .01$, **** $p \leq .001$

(1 tailed)

For females the meta-variable conflict shows moderate to strong positive correlations with schizoid-obsessive, sex problems, and delinquent variables and moderate to very strong negative correlations with working hard, learning, and adaptive functioning sum variables.

When the meta-variable conflict is formed by averaging physical and verbal conflictedness and divorce, moderate correlations between divorce and four dependent variables wash out. Those variables are social withdrawal, cruel, self-destructive, and school problems not listed elsewhere.

The meta-variable dad's drinking for male subjects moderately to very strongly correlates with schizoid or anxious, depressed, obsessive-compulsive, aggressive, delinquent, externalizing, and behavior problems sum variables. No Teacher's Reporting Form adaptive functioning or behavior problem variables reach even mild significance ($p \leq .10$).

For female subjects the meta-variable dad's drinking moderately positively correlates with sex problems, delinquent, aggressive, and externalizing variables and moderately negatively correlate with working hard, behaving appropriately, learning, and adaptive functioning sum variables. No Teacher's Reporting Form behavior problem variables reach even mild significance ($p \leq .10$).

The meta-variable mom's drinking for male subjects produces moderate to strong correlations with obsessive-

compulsive, aggressive, delinquent, problems not listed elsewhere, behavior problems sum, social withdrawal at school, unpopularity at school, aggressive at school, externalizing at school, and sum of school behavior problems variables. It also produces a moderate negative correlation with the happiness variable.

The meta-variable mom's drinking for female subjects does not correlate at the moderate ($p \leq .05$) level for any dependent variables.

Summary

With the formation of meta-variables, more distinct patterns of correlations emerge. Male and female subjects show different patterns on correlation matrices.

With independent variables of conflictedness, father's drinking, and mother's drinking males generally show more correlations on behavior problem variables (i.e. Schizoid or anxious, depressed, obsessive compulsive, aggressive, hyperactive, and externalization) yet also show a significant correlation with being less happy. Females show more correlations on Social and Adaptive Functioning variables (i.e. social, working hard, learning, and happiness) yet also show significant correlations on schizoid-obsessive, sex problems, delinquent, aggressive, and externalizing variables.

Regression Results

Stepwise multiple regression was conducted for all remaining independent variables on each of the dependent variables. The purpose was to see which independent variables predict what percentage of variance in which dependent variables. This was also intended to further refine the list of dependent variables that were affected by the independent variables. To enter the regresssion equation a variable had to be significant at $p \leq .05$ with a tolerance of $\leq .0001$.

Tables 11 and 12 show, for males and females respectively, the compiled results of regression equations on each of the CBCL and TRF scales with the 8 independent variables and 3 meta-variables.

As can be seen for male subjects when the dependent variable is "activities" no independent variables enter or are removed from the regression equation.

For female subjects when the dependent variable is "activities" "milestones" enters on the first step followed by "IQ" on step two. When "IQ" is included "milestones" becomes a more significant effect.

For male and female subjects when the dependent variable is "social" no independent variables enter or are removed from the regression equation.

## Table 11

## Consolidation of Regression Equations (Males)

1 = number of months to next younger sibling's birth (none entered) 2 = attainment of developmental milestones, 3 = early life IQ, 4 = cuddliness, 5 = conflict, 6 = mom's drinking, 7 = dad's drinking, 8 = mom's alcoholic first degree relatives, 9 = dad's alcoholic first degree relatives, 10 = mom's MAST score, 11 = dad's MAST score. (N = 58)

| | Independent variables (cumulative adjusted R-square values) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Dependent variables CBCL | | | | | | | | | | |
| School | | | | | | | -.07**a | | | |
| Schizoid or anxious | | | | .14***a | | | | | | |
| Depressed | | .19**b | | | | | | | | .12***a |
| Uncommunicative | | .12**b | | .07**a | | | | | | |
| Obsessive-compulsive | | | | | | .07**a | | | | |
| Social withdrawal | | | .12***b | .07**a | | | | | | |
| Aggressive | | | | .16****a | | | | | | |
| Delinquent | -.37***b | | | .45***c | | | | | | .27****a |
| Problems not listed elsewhere | | | | | | | | | .07**a | |
| Internalizing | | .09***a | | | | | | | .16**b | |
| Externalizing | | | | | | | | | | .13***a |
| Behavior problems sum | | | | | | | | | | .12***a |
| TRF (at school) | | | | | | | | | | |
| Average adaptive behavior | | | | | | | | | | -.10***a |
| Learning | | | | | | | | | | -.07**a |
| Happy | | | | -.09**a | | | | | | |

# Table 11

## Consolidation of Regression Equations (Males) (cont.)

1 = number of months to next younger sibling's birth (none entered) 2 = attainment of developmental milestones, 3 = early life IQ, 4 = cuddliness, 5 = conflict, 6 = mom's drinking, 7 = dad's drinking, 8 = mom's alcoholic first degree relatives, 9 = dad's alcoholic first degree relatives, 10 = mom's MAST score, 11 = dad's MAST score. (N = 58)

| | Independent variables (cumulative adjusted R-square values) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Dependent variables | | | | | | | | | | |
| Adaptive functioning sum | | | | | | | | | | -.09**a |
| Obsessive-compulsive | | .09**a | | | | | | | | |
| Inattentive | | | | | | | | | | .06**a |
| Nervous-overactive | | .05**a | | | | | | | | |
| Aggressive | | | | | .05**a | | | | | |
| Externalizing | | | | | .06**a | | | | | |
| Sum behavior problems | | .12**b | | | .07**a | | | | | |

PIN = .050

* $p \leq .10$ (not entered), ** $p \leq .05$, *** $p \leq .01$, **** $p \leq .001$.

a = variable entered on first step of regression.
b = variable entered on second stage of regression.
c = variable entered on third stage of regression.

Table 12

## Consolidation of Regression Equations (Females)

1 = number of months to next younger sibling's birth (none entered), 2 = attainment of developmental milestones, 3 = early life IQ, 4 = cuddliness, 5 = conflict, 6 = mom's drinking (none entered), 7 = dad's drinking, 8 = mom's alcoholic first degree relatives, 9 = dad's alcoholic first degree relatives, 10 = mom's MAST score, 11 = dad's MAST score. (N = 42)

Independent variables
(cumulative adjusted R-square values)

| Dependent variables | 2 | 3 | 4 | 5 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|
| CBCL | | | | | | | | | |
| Activities | .11**a | .18**b | | | | | | | |
| School | | .11**a | | | | | | | |
| Schizoid-obsessive | | | | .26**b | | .17***a | | | |
| Sex problems | | | | | | | | .25****a | |
| Delinquent | | | | | | .35***b | | | .23****a |
| Aggressive | -.22**b | | | | | .29**c | | | .14***a |
| Cruel | | | -.15**b | | | .09**a | | | |
| Problems not listed elsewhere | -.09**a | | | | | .17**b | | | |
| Externalizing | | | | | | | | | .14***a |
| Behavior problems sum | | | | | | .09**a | | | |
| TRF (in school) | | | | | | | | | |
| Working hard | | | | | | | | -.11**a | |
| Behaving appropriately | | | | | | | | -.08**a | |
| Happy | | | | -.10**a | | | | | |
| Adaptive functioning sum | | | | | | | | -.10**a | |
| Social withdrawal | | | | | | .17***a | | | .23**b |

## Table 12

## Consolidation of Regression Equations (Females) (cont.)

1 = number of months to next younger sibling's birth (none entered), 2 = attainment of developmental milestones, 3 = early life IQ, 4 = cuddliness, 5 = conflict, 6 = mom's drinking (none entered), 7 = dad's drinking, 8 = mom's alcoholic first degree relatives, 9 = dad's alcoholic first degree relatives, 10 = mom's MAST score, 11 = dad's MAST score. (N = 42)

| | Independent variables (cumulative adjusted R-square values) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 7 | 8 | 9 | 10 | 11 |
| Dependent variables | | | | | | | | | |
| Nervous-overactive | | | .10**a | | | | | | |
| Problems not listed elsewhere | | | .11**a | | | | .23**b | | |
| Externalizing | | | | | | .07**a | | | |
| Sum behavior problems | | | | | | .10**a | | | |

PIN = .050

* $p \leq .10$ (not entered), ** $p \leq .05$, *** $p \leq .01$, **** $p \leq .001$.

a = variable entered on first step of regression.
b = variable entered on second stage of regression.
c = variable entered on third stage of regression.

For male subjects when the dependent variable is "school" the dependent variable "number of mother's relatives who were alcoholic" enters on step one of the multiple regression equation.

For female subjects when the independent variable is "school" the dependent variable "IQ" enters on step one.

For male and female subjects when the dependent variable is "social competence sum" no independent variables enter or are removed from the regression equation.

Meta-variable "conflict" enters on step one of the regression equation for male subjects when the dependent variable is "schizoid-anxious."

No variables enter or are removed for female subjects when "depressed" is the dependent variable.

For male subjects when "depressed" is the dependent variable "father's Michigan Alcoholism Screening Test score" enters on step one of the regression equation followed by "IQ" on step two.

For female subjects no variables enter or are removed from the regression equation when "social withdrawal" is the dependent variable.

For male subjects when "uncommunicative" is the dependent variable "conflict" enters on step one of the regression equation followed by "IQ" on step two.

For female subjects no variables enter or are removed from the regression equation when "somatic complaints" is the dependent variable.

For male subjects when "obsessive-compulsive" is the dependent variable "father's alcohol consumption" enters on step one of the regression equation.

For female subjects when "schizo-obsessive" is the dependent variable "number of alcoholic relatives on mother's side of the family" enters on step one of the regression equation followed by "conflict" on step two.

For male subjects when "somatic complaints" is the dependent variable no variables enter or are removed from the regression equation.

For female subjects when the dependent variable is "hyperactive" no variables enter or are removed from the regression equation.

For male subjects when "social withdrawal" is the dependent variable "conflict" enters on step one of the regression equation and is followed by "cuddliness" on step two. When "cuddliness" is figured in, the significance level of the variable "conflict" increases significantly.

For female subjects when "sex problems" is the dependent variable "mother's score on the Michigan Alcoholism

Screening Test" enters on step one of the multiple regression equation.

For male subjects when "hyperactive" is the dependent variable no variables enter or are removed from the regression equation.

For female subjects when "delinquent" is the variable "father's Michigan Alcoholism Screening Test score" enters on step one of the regression equation and is followed by "number of first degree maternal relatives who are alcoholics" on step two.

For male subjects when "aggressive" is the dependent variable "conflict" enters on step one of the regression equation. For female subjects when "aggressive" is the dependent variable "fathers Michigan Alcoholism Screening Test score" enters on step one of the regression equation followed by "attainment of developmental milestones" on step two and "number of first degree maternal relatives who are alcoholics" on step three.

For male subjects when "delinquent" is the dependent variable "father's score on the Michigan Alcoholism Screening Test" enters on step one of the regression equation, followed by "attainment of milestones" on step two, and "conflict" on step three.

For female subjects when "cruel" is the dependent variable "number of first degree maternal relatives who are

alcoholics" enters on step one of the regression equation followed by "cuddliness" on step two.

For male subjects when "problems not otherwise listed" is the dependent variable "mother's score on the Michigan Alcoholism Screening Test" enters on step one of the regression equation.

For female subjects when "problems not otherwise listed" is the dependent variable "attainment of milestones" enters on step one of the regression equation followed by "number of first degree maternal relatives who are alcoholics" on step two.

For male subjects when "internalizing" is the dependent variable "IQ" enters on step one of the regression equation followed by "mother's Michigan Alcoholism Screening Test score" on step two.

For female subjects when "internalizing" is the dependent variable no variables enter or are removed from the regression equation.

For male subjects when "externalizing" is the dependent variable "father's Michigan Alcoholism Screening Test score" enters on step one of the regression equation.

For female subjects when "externalizing" is the dependent variable "father's Michigan Alcoholism Screening Test score" enters on step one of the regression equation.

For male subjects when "behavior problems sum" is the dependent variable "father's score on the Michigan Alcoholism Screening Test" enters on step one of the regression equation.

For female subjects when "behavior problems sum" is the dependent variable "number of first degree maternal relatives who are alcoholics" enters on step one of the regression equation.

For male subjects when "average adaptive behavior at school" is the dependent variable "father's score on the Michigan Alcoholism Screening Test" enters on step one of the regression equation.

For female subjects when "average adaptive behavior at school" is the dependent variable no variables enter or are removed from the regression equation.

For male subjects when "working hard" is the dependent variable no variables enter or are removed from the regression equation.

For female subjects when "working hard" is the dependent variable "mother's score on the Michigan Alcoholism Screening Test" enters on step one of the regression equation.

For male subjects when "behaving appropriately" is the dependent variable no variables enter or are removed from the regression equation.

For female subjects when "behaving appropriately" is the dependent variable "mother's score on the Michigan Alcoholism Screening Test" enters on the first step of the regression equation.

For male subjects when "learning" is the dependent variable "father's score on the Michigan Alcoholism Screening Test" enters on step one of the regression equation.

For female subjects when "learning" is the dependent variable no variables enter or are removed on the regression equation.

For male subjects when "happy" is the dependent variable "conflict" enters on step one of the regression equation.

For female subjects when "happy" is the dependent variable "conflict" enters on step one of the regression equation.

For male subjects when "adaptive functioning sum" is the dependent variable "father's score on the Michigan Alcoholism Screening Test" enters on step one of the regression equation.

For female subjects when "adaptive functioning sum" is the dependent variable "mother's score on the Michigan Alcoholism Screening Test" enters on step one of the regression equation.

For male and female subjects when "anxious at school" is the dependent variable no variables enter or are removed from the regression equation.

For male subjects when "social withdrawal at school" is the dependent variable no variables enter or are removed from the regression equation.

For female subjects when "social withdrawal at school" is the dependent variable "number of alcoholic maternal first degree relatives" enters on step one of the regression equation and is followed by "father's score on the Michigan Alcoholism Screening Test" on step two.

For male subjects when "unpopular" is the dependent variable no variables enter or are removed from the regression equation.

For female subjects when "depressed" is the dependent variable no variables enter or are removed from the regression equation.

For male subjects when "self-destructive" is the dependent variable no variables enter or are removed from the regression equation.

For female subjects when "unpopular" is the dependent variable no variables enter or are removed from the regression equation.

For male subjects when "obsessive-compulsive" is the dependent variable "IQ" enters on step one of the regression equation.

For female subjects when "self destructive" is the dependent variable no variables enter or are removed from the regression equation.

For male subjects when "inattentive " is the dependent variable "father's score on the Michigan Alcoholism Screening Test" enters on step one of the regression equation.

For female subjects when "inattentive" is the dependent variable no variables enter or are removed from the regression equation.

For male subjects when "nervous-overactive" is the dependent variable "IQ" enter on step one of the regression equation.

For female subjects when "nervous-overactive" is the dependent variable "cuddly" enters on step one of the regression equation.

For male subjects when "aggressive" is the dependent variable "mother's score on the Michigan Alcoholism Screening Test " enters on step one of the regression equation.

For female subjects when "aggressive" is the dependent variable no variables enter or are removed from the regression equation.

For male subjects when "school problems not listed elsewhere" is the dependent variable no variables enter or are removed from the regression equation.

For female subjects when "school problems not listed elsewhere" is the dependent variable "cuddly" enters on step one of the regression equation, followed by "number of maternal first degree relatives who were alcoholics" on step two.

For male subjects when "internalizing at school" is the dependent variable no variables enter or are removed from the regression equation.

For female subjects when "internalizing at school" is the dependent variable no variables enter or are removed from the regression equation.

For male subjects when "externalizing at school" is the dependent variable "mother's alcohol consumption" enters on step one of the regression equation.

For female subjects when "externalizing at school" is the dependent variable "number of first degree relatives who are alcoholics" enters on step one of the regression equation.

For male subjects when "sum of school behavior problems" is the dependent variable "mother's alcohol consumption" enters on step one of the regression equation, followed by "IQ" on step two.

For female subjects when "sum of school behavior problems" is the dependent variable "number of maternal first degree relatives who are alcoholics" enters on step one of the regression equation.

Table 13 shows correlations between interviewer overall ratings of the invalidity of parent responses and the invalidity of teacher responses. Scores were derived from a point system in which each interviewer's notes were given a score of zero if the respondent's answers were seen as generally valid or a score of one if the respondent's answers were seen as questionable. With two interviewers the minimum and maximum possible scores for a given interview were zero and two, respectively.

No correlations are shown when considering only invalidity ratings for parents' responses with males' scores on the Child Behavior Checklist.

No correlations are shown when considering only invalidity ratings for teachers' responses with males' scores on the Teacher's Report Form.

Moderate negative correlations on activities, social competence sum, social withdrawal, somatic complaints, cruel, and internalizing variables, and a strong negative correlation on the problems not listed elsewhere variable are shown when considering only invalidity ratings for parents' responses with females' scores on the Child Behavior Checklist. A negative correlation on these variables means that as the respondent is

Table 13

Correlation Matrix: Questionable Interview

1 = questionable parent interview and 2 = questionable teacher interview

| | Independent variables | | | |
|---|---|---|---|---|
| | Males (N =58) | | Females (N = 42) | |
| | 1 | 2 | 1 | 2 |
| Dependent variables | | | | |
| CBCL | | | | |
| Activities | | | -.26** | |
| Social competence sum | | | -.23* | |
| Social withdrawal | | | -.26** | |
| Somatic complaints | | | -.26** | |
| Cruel | | | -.27** | |
| Problems not listed elsewhere | | | -.36*** | |
| Internalizing | | | -.27** | |
| TRF (in school) | | | | |
| Behaving appropriately | | | -.21* | -.25* |
| Learning | | | | -.29** |
| Happy | -.34*** | | -.21* | -.32** |
| Adaptive functioning sum | | | | -.24* |
| Social withdrawal | .30** | | | .44**** |
| Unpopular | .19* | | | |
| Self destructive | .30*** | | .40*** | .26* |
| Inattentive | | | | .24* |
| Nervous-overactive | | | .54**** | |
| Aggressive | | | .22* | .25* |
| Problems not listed elsewhere | .19* | | .28** | .64**** |
| Internalizing | | | | .20* |
| Externalizing | | | | .25* |
| Sum behavior problems | | | | .35** |

P ≤ .10, ** p ≤ .05, *** p ≤ .01, **** p ≤ .001 (1 tailed)

judged increasingly invalid the scores on these behavior problem scales are lower.

Moderate negative correlations on learning at school and happy at school variables; a moderate positive correlation on the sum of school behavior problem variable; very strong positive correlations with social withdrawal at school, unpopular at school, and school problems not listed elsewhere variables are shown when considering only invalidity ratings for teachers' responses with females' scores on the Teacher's Report Form.

Summary of Regression Results

Seventy multiple regression equations were run; 41.4% (n=29) produced no variables which met criteria for entry, 38.6% (n=27) produced one,17.1% (n=12) produced two, and 2.9% (n=2) produced three. Of 11 independent variables only "number of months to next sibling's birth" fails to enter any regression equation and only "number of alcoholic first degree paternal relatives" and "dad's drinking" fail to enter at least one male and one female regression equation.

For male subjects, father's score on the Michigan Alcoholism Screening Test (n = 8), conflict (n = 6), and IQ (n = 5) are the variables that contribute most frequently. For females it is the number of alcoholic first-degree maternal relatives (n = 8), father's score on the Michigan Alcoholism Screening Test (n = 5), and mother's score on the Michigan Alcoholism Screening Test (n = 4).

The greatest magnitude of explained variance occurrs with multiple regression of independent variables on the dependent variable "delinquent" for both males (adjusted R-squared =.45, df=54, F=16.557, significance F=.0000) and females (adjusted R-square =.35, df=39, F=12.045, significance F=.0001).

No adjusted R-squared values in the .20 to .29 range are shown in regressions for male subjects.

Adjusted R-squared values in the .20 to .29 range are produced in regressions for female subjects on schizoid-obsessive, sex problems, aggressive, social withdrawal at school, and school problems not listed elsewhere variables.

Adjusted R-squared values in the .10 to .19 range are produced in regressions for male subjects on schizoid-anxious, depressed, uncommunicative, social withdrawal,aggressive, internalizing, externalizing, behavior problems sum, average adaptive behavior at school, and sum of school behavior problems variables.

Adjusted R-squared values in the .10 to .19 range are produced in regressions for female subjects on activities, school, cruel, problems not listed elsewhere, externalizing, working hard at school, happy at school, adaptive functioning sum, nervous-overactive at school, and sum of school behavior problems variables.

Adjusted R-squared values in the .01 to .09 range are produced in regressions for male subjects on school, obsessive-compulsive, problems not listed elsewhere, learning at school, happy at school, adaptive functioning sum, obsessive-compulsive at school, inattentive at school, nervous-overactive at school, aggressive at school, and externalizing at school variables.

Adjusted R-squared values in the .01 to .09 range are produced in regressions for female subjects on behavior problems sum, behaving appropriately at school, and externalizing at school variables.

In Table 14 the most salient pair of independent variables (Father's and mother's Michigan Alcoholism Screening Test) are displayed demonstrating in descending magnitude of strength which dependent variables are most powerfully impacted.

## Summary of Results by Hypothesis

Hypothesis 1. As their parents' scores on the Michigan Alcohol Screening Test increase, 6- to 11-year-old children's mean scores increase on the behavior problems scales and decrease on the social competence scales scores as shown in the CBCL and TRF profiles.

Table 14

## Dad's MAST Scores: The Most Salient Regression Entry

Dad's MAST Scores
(Adjusted R-square values)

| Dependent variables | Males | Dependent variables | Females |
|---|---|---|---|
| CBCL | | CBCL | |
| Delinquent | .27**** | Delinquent | .23**** |
| Externalizing | .13*** | Externalizing | .14*** |
| Behavior problems sum | .12*** | Aggressive | .14*** |
| Depressed | .12*** | | |
| TRF (at school) | | TRF (at school) | |
| Average adaptive behavior | -.10*** | Social withdrawal | .06** |
| Adaptive functioning sum | -.09** | | |
| Learning | -.07** | | |
| Obsessive-compulsive | .06** | | |

PIN = .050

* $p \leq .10$ (not entered), ** $p \leq .05$, *** $p \leq .01$, **** $p \leq .001$.

Finding 1. Hypothesis1 is supported for both males and females with the qualification that not all scale scores reach levels of significance. Significant correlations are shown between fathers' total scores on the Michigan Alcoholism Screening Test and their sons' scores on the Child Behavior Checklist and the Teacher's Report Form. At least a moderate level of significance is reached on 22 of 35 variables. The strongest correlations suggest that, as the social sequelae of father's alcohol consumption increase, sons are much more likely to be delinquent, depressed, have problems with the manner in which they internalize and externalize their problems, have generally poor school behavior ratings, and be unhappy at school. Moderate correlations were also found that suggest sons are having problems with school performance, social competence, anxiety, uncommunicativeness, obsessive-compulsive thoughts and actions, hyperactivity, aggressiveness at home and at school, inappropriate school behavior, self-destructive behavior at school, inattention at school, nervous-overactivity at school, and externalizing their problems at school.

Fewer correlations are shown between mothers' total scores on the Michigan Alcoholism Screening Test and their sons' scores on the Child Behavior Checklist and the Teacher's Report Form. These correlations show that as the social sequelae of their mothers' drinking add up the sons are more depressed and aggressive, have more somatic complaints, and have significant problems with internalizing and externalizing patterns of dealing with problems.

Daughters' Child Behavior Checklist and Teacher's Report Form scores show significant correlations with fathers' total scores on the Michigan Alcoholism Screening Test less frequently than do sons'. They produce at least moderate correlations on 7 of 35 variables. Difficulties with sex problems, delinquency, aggressiveness, cruelty, externalization of problems, and social withdrawal at school are strongly suggested. Schizoid-obsessive and overall behavior problems are moderately suggested.

Daughters' Child Behavior Checklist and Teacher's Report Form scores produce significant correlations with mothers' total scores on the Michigan Alcoholism Screening Test less frequently than do sons'. They produce at least moderate correlations on 6 of 35 variables. Difficulties with sex problems is strongly suggested. Schizoid-obsessive, delinquency, aggressiveness, externalization of problems and overall behavior problems are moderately suggested.

Hypothesis 2. As the number of reported alcoholic first-degree relatives of their parents increase, 6- to 11-year-old children's mean scores increase on the behavior problems scales and decrease on the social competence scales scores as shown in the CBCL and TRF profiles.

Finding 2. Hypothesis 2 is supported for both males and females with the qualification that not all scale scores reach levels of significance. For sons, the more first-degree maternal alcoholic relatives the less likely they are doing well in school. They have lower adaptive functioning skills and are more likely to be self-destructive, inattentive, nervous-overactive, and aggressive

externalizers at school. The more first-degree paternal alcoholic relatives they have the more likely they are to have problems with aggressiveness, externalizing, and especially delinquency. They also have more "problems not listed elsewhere".

For daughters, the more first-degree maternal alcoholic relatives they have the more likely they are to be depressed, withdrawn, schizoid-obsessive, hyperactive, aggressive, cruel, and externalizing and to have sex problems, be withdrawn, depressed, unpopular, and externalizing at school. The strongest correlation is with delinquency. They are also less likely to work hard at school. The more first degree paternal alcoholic relatives they have the more likely they are to have problems with aggressiveness, externalizing, and especially delinquency. They also have more "problems not listed elsewhere" and are likely to not be working very hard at school.

Hypothesis 3. As their parents divorce and ratings of verbal and physical conflictedness increase, 6- to 11-year-old children's mean scores increase on the behavior problems scales and decrease on the social competence scales scores as shown in the CBCL and TRF profiles.

Finding 3. Hypothesis 3 is supported for both males and females with the qualification that not all scale scores reach levels of significance.

When sons are subjected to more familial conflictedness comprised of parental verbal conflict, physical conflict, and divorce they are less likely to be socially competent; more likely to be

obsessive-compulsive, socially withdrawn, and aggressive; and much more likely to be schizoid-anxious, depressed, aggressive, and delinquent.

When daughters are subjected to more familial conflictedness comprised of parental verbal conflict, physical conflict, and divorce they were less likely to be socially active, working hard at school, learning at school, and happy at school; more likely to be delinquent; and much more likely to be schizoid-obsessive and have sex problems.

Hypothesis 4. As the number of months to a next younger sibling decrease, ratings of IQ and cuddliness are lower, and developmental milestones are attained more slowly; 6- to 11-year-old children's mean scores increase on the behavior problems scales and decrease on the social competence scales scores as shown in the CBCL and TRF profiles.

Finding 4. While compared with the previous hypothesis hypothesis 4 is less strongly and less frequently supported for male or female subjects, there are some isolated findings worth noting.

Only a few minimally significant correlations are found for sons and daughters when considering the number of months to the next younger sibling.

Higher IQ estimates for males correlate with the dependent variables depression, uncommunicative, internalizing, externalizing, self-destructive at school, obsessive-compulsive at school, nervous-overactive at school, internalizing at school, externalizing at school, and sum of behavior problems at school. Of these, only obsessive-

compulsive reaches a strong level of significance and none reach very strong levels of significance.

As daughters are rated more intelligent they perform better at school and attain higher average adaptive behavior at school ratings. Higher intelligence ratings also correlate with lower social withdrawal at school ratings.

Higher cuddliness estimates result in no moderate, strong, nor very strong correlations for males.

Higher cuddliness estimates for females correlate with less cruelty and more self-destructiveness, inattentiveness, and nervous-overactivity at school.

As sons are reported to have attained their developmental milestones earlier they are less obsessive-compulsive, less aggressive, and more likely to internalize problems.

Daughters are less likely to be obsessive-compulsive and aggressive.

Hypothesis 5. As their parents drink more alcohol, 6- to 11-year-old children's mean scores increase on the behavior problems scales and decrease on the social competence scales scores as shown in the CBCL and TRF profiles.

Finding 5. Hypothesis 5 is sporadically and less strongly supported for males and females.

As fathers' alcohol consumption (Table 16) increases sons are more likely to be schizoid or anxious, depressed, obsessive-compulsive, aggressive, externalizers, and especially delinquent.

Daughters are more likely to have sex problems and be more delinquent, aggressive, and externalizing while being less hardworking, behaviorally appropriate, and happy at school.

As mothers' alcohol consumption increases, sons are more likely to be obsessive compulsive, aggressive, externalizing, socially withdrawn at school, unpopular at school, aggressive at school, externalizing at school, and especially delinquent. They are also less likely to be happy at school.

Daughters' scores on the Child Behavior Checklist and Teacher's Report Form are essentially unaffected by mothers' alcohol consumption.

Hypothesis 6. There are gender-related differences on the CBCL and TRF such that male subjects score higher than female subjects on behavior problem scales.

Finding 6. As seen in the preceding discussion more scales are affected for males than for females. Also the magnitude of significance on behavior problem scales is greater for male than for female respondents.

Hypothesis 7. In regression analyses using the above independent and dependent variables and there is a subset of independent variables that more frequently enters the regression

equations. There is also a subset of dependent variables which more frequently correlates with that subset of independent variables.

Finding 7. Hypothesis 7 is supported for both males and females. Eleven independent variables frequently correlate with 22 of 35 dependent variables for males and 20 of 35 dependent variables for females ($p \leq .05$).

Males' father's Michigan Alcoholism Screening test was the variable that entered most frequently (N = 8), followed by conflict (N = 6), and IQ (n=6). When considering the nine dependent variables which have the greatest amount of explained variance, these three variables account for thirteen of the fifteen times independent variables entered.

The greatest percentage of variance is explained on the following CBCL variables: Delinquent (adjusted R-square=.45), depression (.19), internalizing (.16), aggressive (.16), schizoid or anxious (.14), externalizing (.13), uncommunicative (.12), social withdrawal (.12), behavior problems sum (.12). The only comparable contributions from the TRF are: Sum of school behavior problems (.12) and average adaptive behavior at school (.10).

For females the number of alcoholic first-degree maternal relatives was the variable that entered most frequently (N = 9), followed by fathers' total scores on the Michigan Alcoholism Screening Test (n = 4), and mothers' scores on the Michigan Alcoholism Screening Test (n = 4).

The greatest percentage of variance is explained on the following CBCL variables: Delinquent (adjusted R-square=.35), aggressive (.29), schizo-obsessive (.26), sex problems (.25), activities (.18), problems not listed elsewhere (.17), cruel (.15), externalizing (.14), and school (.11). Contributions from the TRF are stronger for females than for males. They are: Social withdrawal at school (.23), school problems not listed elsewhere (.23), working hard at school (.11), adaptive functioning sum (.10), nervous-overactive (.10), sum of school behavior problems (.10), and happy at school (.10).

When the significance level is increased ($p \leq .01$) a cluster of 3 independent variables for males and 4 independent variables for females is shown that predicts sets of 6 dependent variables for males and 6 dependent variables for females.

The independent variable cluster for males is comprised of dad's Michigan Alcoholism Screening Test score (strong loading in 5 dependent variables), the meta-variable conflict (3), and attainment of developmental milestones (1). This cluster shows strong correlations with CBCL variables schizoid or anxious, aggressive, delinquent, externalizing, and behavior problems sum and TRF variable average adaptive behavior at school.

The independent variable cluster for females is comprised of dad's Michigan Alcohol Screening Test score

(strong loading in 3 dependent variables), number of alcoholic maternal first degree relatives (3), attainment of developmental milestones (1), and mom's Michigan Alcohol Screening Test score (1). This cluster shows strong correlations with CBCL variables schizoid-obsessive, sex problems, delinquent, aggressive, externalizing and TRF variable social withdrawal at school.

# CHAPTER V

## DISCUSSION

Previous research rarely used random sampling methods in studying outcomes for offspring of alcohol-consuming parents. Usual selection procedures involved post-hoc investigations. A diagnosis of alcoholism for one or both parents was required for a subject child to become part of the research cohort. This method often generated studies in which cohorts of offspring of various clinical populations were compared with each other, often far enough along in life that outcomes for the offspring could be observed as well.

Since alcoholics are often well into their child-rearing years by the time they are diagnosed, there are problems with waiting for formal diagnosis before identifying children at risk. Since only a small proportion of alcoholics ever make it to treatment, there are also problems with being able to confidently generalize research findings from that accessible population to the population of interest.

Early intervention is acknowledged as one of the keys to prevention. The present study looks at the social and behavioral outcomes for children drawn from a random sample of the general population with special attention to how those outcomes correlate with certain alcohol-related variables. No formal diagnosis of alcoholism was required for inclusion in the study. The purpose was to show how children's social competence and behavior problem variables are affected by

parental alcohol consumption, social sequelae of alcohol consumption, and family alcoholism heritability loadings and to see whether certain early-life variables affect such correlations.

The effect of parental alcohol consumption and its sequelae on outcomes for children is shown. The powerfulness of this effect is both broad and deep. The social sequelae of paternal alcohol consumption impact sons and daughters on many social and behavioral variables and most powerfully on a measure of delinquent behavior. A comparable range of social sequelae of maternal alcohol consumption is not shown in this study. However, the range that is shown does produce a less pervasive though still strong impact on children.

In addition to the high correlation with a measure of delinquency, children show a second tier of correlations which is different for boys and girls. As their fathers are more alcohol involved, boys have more difficulty with externalizing and internalizing their problems. They are quite unhappy in school and depressed at home. They are also much more likely to struggle with learning adaptive skills at school. In many instances these findings are strengthened by the presence of increased maternal involvement, conflictedness in the home and, to a lesser degree, other independent variables in this study.

As their fathers are more alcohol involved and there are more first degree maternal relatives who are alcoholics, girls have more difficulty with sex problems and externalizing

problems. They are also more aggressive, schizoid-obsessive, and cruel. At school they are much more likely to be withdrawn and not working as hard at their studies.

These findings are born out by correlation and regression analysis. The same patterns are shown by simple correlation of the fathers' Michigan Alcohol Screening Test scores with the scales of the Child Behavior Checklist and Teachers' Report Form as when using regression analysis and adding ten more independent variables. Also correlational analysis shows an iceberg effect where the strongest effect (Delinquent) is at the peak and other less strong though still significant effects are still produced.

The strength of findings using the random sampling method of subject selection is vulnerable to refusal problems. Surprisingly, in this study only 5 of 105 (4.7%) parents refused and 1 of 101 (0.9%) teachers refused. It is believed that the decision to agree or to refuse participation was influenced by intangibles. Following are several such intangibles that are believed to have decreased respondent defensiveness and therefor increased receptivity to participation.

The researcher in this study has been active in the community for six years as a volunteer, board member for nonprofit organizations, private practice psychotherapist, and university course instructor. The advantage of name recognition was maximized by the researcher making all initial phone calls to ask for participation and conducting all parent

interviews. The researcher also made all contacts with the school district.

The study was conducted in a community where many residents are either employed by, attend, or do business with the university. This adds a self-interest factor to participation.

It also results in easy access to university verification that the study is valid. This was further aided by the researcher being prepared to provide names and phone numbers of persons at the university who could provide verification of the legitimacy of the study. When these contacts were offered, few of the subjects actually called. Those that did were met with accurate information by psychology department secretarial staff. That was sufficient.

At every stage emphasis was placed on the importance of the study in providing information that would be helpful to parents, helping professionals, and children. Every parent and teacher was asked if, once the study is completed, they would like to receive a one to two page description of its findings. All said yes.

Also at every stage of the study confidentiality was protected and subjects were informed of the researcher's commitment to confidentiality.

The use of instruments that used parental and teacher contacts and not child contacts seemed to ease parental defensiveness, especially when combined with all information

gathering on a given child being confined to one parent and one teacher contact.

The interviews were scheduled at the convenience of the parent in the home or at the researcher's office. ]

The most intangible of all factors was the openness of the researcher's presentation over the phone and in person. A few parents were initially quite defensive and suspicious. This lessened as every concern was answered. Being able to tell parents and teachers that a human subjects review board had approved the study and that the school district research committee had permitted access to school personnel and records made an important difference for several subjects.

Some teachers asked repeatedly how the particular subject child had been selected and seemed to continue to doubt the randomness of selection even after assurances were given. These same teachers also seemed quite concerned about being legally protected prior to participation. When they were certain the school district had allowed the study they did participate.

Keeping to one the number of children from a given teacher's student load had been the goal. In two instances there were three children from one teacher's class who were randomly selected. These two teachers each had other team teachers who could have been asked but were gracious enough to go the extra mile and gave the same careful attention to the third child they had given to the first two.

Limitations

Although the simple random sampling method produces distributions that are generally quite useful and provide a good base for drawing support or nonsupport for hypotheses, certain limitations must be mentioned by way of qualifying the discussion that follows.

1) No mothers self-reported in the heavy alcohol consumption category. This distribution may be due to women usually drinking less than men, usually taking longer from date of first drink to date of heavy drinking, and that the accessible population from which this sample was drawn had already been shown to have twice the national rate of abstainers and minimal drinkers. It may also have to do with the secretive style of drinking women often engage in. When using the Michigan Alcoholism Screening Test score criteria of 5, 13% (N=13) of the women in this study do classify for a probable diagnosis of alcoholism. If the drinking style is so secretive as to minimize detection by family members it may also reduce the social sequelae of maternal alcohol consumption. To the extent these sequelae are an active agent, the impact may not be as observable in the early stages as is the impact of more overt paternal alcohol consumption. It may also be that mothers at the moderate drinking level will progress to the heavy drinking level with time and that they will become more public. None the less this abbreviated self-report range does not easily make for correlations of CBCL and TRF scores with heavy maternal alcohol consumption. One finding that is

affected by this is the absence of TRF correlates with maternal alcohol consumption.

2) The mean age for male subjects is 85 months and for female subjects 99 months.

3) When meta-variables are formed most correlations are continued or even strengthened. Some variables do wash out. More refined analysis of which variables are impacted by the presence or absence of other variables is beyond the scope of the present study. A larger N producing sufficient numbers in the subset scores on each variable is necessary.

4) Significant invalidity ratings are notably absent for parent and teacher interviews regarding male subjects and notably present for parent and teacher interviews regarding female subjects. These ratings are derived from subjective comments by interviewers following each interview. It is possible that as societal expectations for males and females are different respondents are less comfortable attributing behavior problem items to females than to males. It is also possible that this is a random production.

5) Since the sample is drawn from a population which ties abstinance to religious practice and has a high rate of abstinant and minimal drinkers it is not as easy to generalize to the larger population. There may be additional variables that are more concentrated in the group of persons who deviate from drinking norms in this population. These variables may not be present for persons who are heavy drinkers in

populations where alcohol consumption is acceptable and those in which alcohol consumption is considered desirable.

6) Each of the TRF adaptive behavior scale values and the early life scale values in the researcher developed questionnaire are produced by single questions. All other variables are produced by combined simple averaging of scores or weighted scores as in the MAST total and CBCL social competence scores. Using multiple measures is a better method for producing more solid values.

Implications

Parents need to know that a formal diagnosis of alcoholism is not necessary for the impact of alcohol consumption to be felt by their children. As parents become more alcohol-involved and are dealing with the financial, legal, physical, and social results of drinking the resources they have available for their children are diverted. When heavily drinking, their anesthetized state makes them empathically unavailable such that the nurturance and interaction their children need for healthy development is not provided. Alcohol consumption often contributes to conflictedness within the family and this impact is also felt by the children. Though boys and girls appear to respond in different patterns both do respond. Most powerfully they both respond with increases in the frequency of delinquent behaviors.

Teachers, evaluators, and treatment professionals need to be aware that certain patterns of behavior at home or at

school may be the result of parental alcohol abuse. In particular any child who is involved in delinquent behavior must be considered in this vein. Preventive intervention must involve parent education when delinquent behaviors first occur rather than later as is often the case.

For researchers the implication is that while clinical vs clinical comparison studies are important for determining intervention strategies with identified patients, simple random sample studies can be done that provide a baseline for understanding the impact of parental alcohol consumption on children. From this research can come pathway comparisons that show which children are more likely to be healthy and never require treatment, unhealthy and never seek treatment, and unhealthy and seek treatment. If these paths can be identified then perhaps preventive interventions can be devised.

One of the keys to the success of this type of research is careful attention to factors that keep refusal rates down and increase the inclusion of most subjects as selected by the initial sampling.

For funding agencies this argues for selection of research projects which are conducted by persons with good community name recognition, from established organizations, with positive track records for community service. Such studies must involve a personally open, flexible style throughout and be designed and implemented in such a way as

to foster a sense of purpose and trust in parent and professional respondents.

Suggestions for Future Research

Replication of this study using larger sample size and more heterogenous accessible population is indicated. It is possible that certain demographic characteristics of the target population affected outcomes and the absence of maternal self-identified heavy alcohol consumers tempers the conclusions that can be drawn. Ideally this initial replication would keep all items intact so as to allow more direct comparisons with the present study. It is possible that with a larger sample size more mothers will self report moderate and heavy drinking and that this will produce more strength of correlations with both CBCL and TRF scales for boys and girls.

It is also possible that even with mothers who report moderate to heavy drinking, daughters will still not show behavior problem correlates. If so some resilience factor must be considered. (Perhaps the lower levels of dehydrogenase in their livers along with faster mean rate of maturation when compared with boys serves to innoculate girls.)

While keeping items the same, this replication should be modified so as to produce a longitudinal study. The Child Behavior Checklist is normed for ages 6 to16 and could be readministered throughout such a study.

Within this longitudinal study the larger sample will make possible more discriminating analysis of item clusters.

Such analysis would include using expert raters to sort items on the questionnaire and the Michigan Alcohol Screening Test into independent variable clusters that load for heritability, social learning, resilience and other factors. The same raters would also rate the CBCL and TRF scales for the same factors. Then, correlations of independent variable clusters with CBCL and TRF scales within a longitudinal study would allow researchers to see if there are different pathways for each variable cluster. Such a study would also show whether the more subtle and less pervasive correlations within the present study moderate other correlations in a systemmatic pattern.

The apparent suggestion from the present study is that the TRF is not as useful an instrument as is the CBCL when looking at socio-behavioral correlates. The simplistic response would be to jettison the TRF from the proposed future study. Instead it should be retained. Steps should be taken to increase the probability that the TRF produces accurate results. This includes having the researcher be one of the interviewers for all teacher interviews as well as all parent interviews, devising a letter of introduction from someone in authority at the school district office asserting the importance of the study, and a brief instruction to each teacher at the beginning of the interview comparable to the instruction given to each parent in the present study. That instruction was that the researcher, "understands that sometimes a parent might feel uncomfortable answering a particular question and yet the study is totally reliant on accurate answers. Because of this you (the parent) are requested to say 'pass' on any item you

feel any reservations about answering. Any 'pass' response will not be recorded. That question will not be asked again and the interview will go on. A nonresponse can be accounted for more easily than an inaccurate one we do not know is there."

## Conclusion

These findings show that the impact of parental alcohol abuse is not confined to offspring of diagnosed alcoholics and that this impact is felt by children from early life. Perhaps as this study and those that follow continue to provide accurate information about these outcomes, parents and other persons in society will consciously and conscienciously take steps to educate themselves and others with accurate information; and armed with this awareness when they elect to drink will take steps toward appropriate, nonabusive alcohol use.

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# APPENDICES

Appendix A
Michigan Alcoholism Screening Test

(dual administration as modified by Jan Bacon, MSW, 1988)
**Note: In this questionaire "drinking" refers to alcoholic beverages only.**
**Respondent is: __Biofather, __Biomother, __Stepfather, __Stepmother, __Adoptive father, __Adoptive mother.**

| Points | Questions | Answers |
|---|---|---|
| 0 | 0a. Have you ever consumed even one alcoholic beverage? | Yes No |
| | Ob. Has your spouse ever consumed even one alcoholic beverage? | Yes No |
| 2+ | 1a. Do you feel you are a normal drinker? | Yes No |
| | If no, why not?_____ | |
| 2+ | 1b. Do you feel your spouse is a normal drinker? | Yes No |
| | If no, why not?_____ | |
| 2 | 2a. Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening before? | Yes No |
| 2 | 2b. Has your spouse ever awakened the morning after some drinking the night before and found that he/she could not remember a part of the evening before? | Yes No |
| 1 | 3a. Does your spouse or your parents ever worry or complain about your drinking? | Yes No |
| 1 | 3b. Do you or your spouse's parents ever worry or complain about your spouse's drinking? | Yes No |
| 2+ | 4a. Can you stop drinking without a struggle after one or two drinks? | Yes No |

2+ 4b. Can your spouse stop drinking without a struggle after one or two drinks?

Yes No

1 5a. Do you ever feel bad about your drinking?

Yes No

1 5b. Does your spouse ever feel bad about his/her drinking?

Yes No

2+ 6a. Do friends or relatives think you are a normal drinker?

Yes No

2+ 6b. Do friends or relatives think your spouse is a normal drinker?

Yes No

0 7a. Do you ever try to limit your drinking to certain times of the day or to certain places?

Yes No

0 7b. Does your spouse ever try to limit his/her drinking to certain times of the day or to certain places? Yes No

2+ 8a. Are you always able to stop drinking whenever you want to? Yes No

2+ 8b. Is your spouse always able to stop drinking whenever he/she wants to?

Yes No

5 9a. Have you ever attended a meeting of Alcoholics Anonymous (AA)?

Yes No

5 9b. Has your spouse ever attended a meeting of Alcoholics Anonymous (AA)?

Yes No

1 10a. Have you ever gotten into fights when drinking?

Yes No

1 10b. Has your spouse ever gotten into fights when drinking?

Yes No

2 11a &b. Has drinking ever created problems with you and your spouse?

Yes No

2 12a. Have any of your family members (including your spouse) ever gone to anyone for help about your drinking?

Yes No

2 12b. Have any of your family members (including yourself) ever gone to anyone for help about your spouse's drinking? Yes No

2 13a. Have you ever lost friends or girlfriends / boyfriends because of drinking?

Yes No

2 13b. Has your spouse ever lost friends or girlfriends/boyfriends because of drinking?

Yes No

2 14a. Have you ever gotten into trouble at work because of drinking?

Yes No

2 14b. Has your spouse ever gotten into trouble at work because of his/her drinking?

Yes No

2 15a. Have you ever lost a job because of drinking?

Yes No

2 15b. Has your spouse ever lost a job because of drinking?

Yes No

2 16a. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking? Yes No

2 16b. Has your spouse ever neglected obligations, family, or work for two or more days in a row because he/she was drinking? Yes No

1 17a. Do you ever drink before noon? Yes No

1 17b. Does your spouse ever drink before noon? Yes No

2 18a. Have you ever been told you have liver trouble? Cirrhosis? Yes No

2 18b. Has your spouse ever been told he/she has liver trouble? Cirrhosis? Yes No

2 19a. Have you ever had delirium tremens (DT's), severe shaking, heard voices, or seen things that weren't there after heavy drinking? Yes No

2 19b. Has your spouse ever had delirium tremens (DT's), severe shaking, heard voices, or seen things that weren't there after heavy drinking? Yes No

5 20a. Have you ever gone to anyone for help about your drinking? Yes No

5 20b. Has your spouse ever gone to anyone for help about his/her drinking? Yes No

5 21a. Have you ever been in a hospital because of your drinking? Yes No

5 21b. Has your spouse ever been in a hospital because of his/her drinking? Yes No

2 22a. Have you ever been a patient in a psychiatric hospital or on a psychiatric ward of a general hospital where drinking was part of the problem? Yes No

2 22b. Has your spouse ever been a patient in a psychiatric hospital or on a psychiatric ward of a general hospital where drinking was part of the problem? Yes No

2 23a. Have you ever been seen at a psychiatric or mental health clinic, or gone to a doctor, social worker, or clergyperson for help with an emotional problem in which drinking had played a part? Yes No

2 23b. Has your spouse ever been seen at a psychiatric or mental health clinic, or gone to a doctor, social worker, or clergyperson for help with an emotional problem in which drinking had played a part? Yes No

2 24a. Have you ever been arrested, even for a few hours, because of drunk behavior? Yes No

2 24b. Has your spouse ever been arrested, even for a few hours, because of drunk behavior? Yes No

2 25a. Have you ever been arrested for drunk driving or driving after drinking? Yes No

2 25b. Has your spouse ever been arrested for drunk driving or driving after drinking? Yes No

Original form from Selzer, M. L., (1971). The Michigan Alcoholism Screening Test: The Quest for a New Diagnostic Instrument. American Journal of Psychiatry, 127(12), 89-94.

Appendix B
Informed Consent for Parent Respondents

Code # _____
Dissertation Research
Utah Sate University-Department of Psychology
Informed Consent/Release of Information Form
For
Parent Respondents

You are being asked to be a confidential subject in an important study. Your name was selected at random from a listing of all the parents of six to eleven year old children in the city of Logan. This study will look at certain events in children's and parents' lives and how these events effect children's behavior and social development.

As a participant you will be asked to answer questions about one of your children and other questions about your own and your spouse's recent history and family history. Specifically, you will be asked questions contained in the following:

1) The Child Behavior Checklist, which asks specific questions about your child's behavior and social skills.

2) A questionaire about you, your child, and your family which asks about events which are believed to effect children as they develope from birth through adolescence.

3) The Michigan Alcoholism Screening Test, which asks about events which happen more frequently in the lives of adults who have a history of alcohol consumption.

You will also be asked to give written permission for your child's teacher to complete the Teacher's Report Form of the Child Behavior Checklist. This checklist asks the same type of questions as the form you will be completing with the exception that questions about your child's functioning at school are also included. In order to save teacher time, and

with your consent, the researcher will get the achievement and intelligence scores from your child's school records. The teacher will not be asked any items on either the questionaire or the Michigan Alcoholism Screening Test items.

The total amount of your time requested is sixty minutes.

With the exception of legally required reporting of suspected child abuse or neglect, everything you say will be kept confidential by the researchers on this study. This study does not request any reportable information, but we want you to be informed that should you give such information we must and will report it.

Once the data about your child are complete all names and addresses will be coded and separated from your responses, school records, and the teacher's reponses. Only the researcher will be able to connect the two.

You may terminate your participation in this study at anytime and without penalty.

I/we, _____(parent's name) hereby voluntarily agree to participate in the above described research project within the above stated conditions and as stated below.

I/we understand this includes giving information about my/our child, myself, and my spouse.

Consent is also given for my/our child's teacher to complete the Teacher's Report Form of the Child Behavior Checklist.

Consent is also given for the school district to allow Mr. Jan Garver Bacon, MSW, access to my/our child's school records of achievement tests, intelligence, readiness, or aptitude.

With this consent I/we release the school district, the teacher, the university, and the research investigator from any legal liability related to the release of information for use within this study.

I/we consent to and request school district and teacher release of information on the following child:

Child Name _____
D.O.B. _____
Teacher Name _____
Grade _____
School _____

I do __, do not __ (check one) wish to receive a brief description of the results of this study.

Parental signature(s)

_____

_____

date _____

Address _____
_____

ZIP _____

Phone _____

Appendix C
Questionnaire

(To be completed by interview or self administration after the Child Behavior Checklist and the Michigan Alcoholism Screening Test have been completed.)

Parent's Name: (A) _____
Gender: Male/Female
Address:_____Phone_____
Husband's/Wife's Name: (B)_____

**Fill this question out only once even if you will later give answers on more than one child.** Please name any children you have who are **four** to eleven years old:

Name Gender DOB Age 1/2 br or sr?
_____M/F_____
Bio Parents (If not same as above): _____
_____M/F_____
Bio Parents (If not same as above): _____
_____M/F_____
Bio Parents (If not same as above): _____
_____M/F_____
Bio Parents (If not same as above): _____
_____M/F_____
Bio Parents (If not same as above): _____
_____M/F_____
Bio Parents (If not same as above): _____
_____M/F_____
Bio Parents (If not same as above): _____
_____M/F_____
Bio Parents (If not same as above): _____
_____M/F_____
Bio Parents (If not same as above): _____
_____M/F_____
Bio Parents (If not same as above): _____

Please answer the following questions: (**Do a complete interview for each six to eleven year old child**)

1. Compared with other children _____ reached milestones like crawling, walking, babbling, talking -
very early_, early_, about on time_, late_, very late_.

2. Regarding intelligence and compared with other children , during the first two years of life _____ was
way below average_, below average_, average_,
above average_, way above average intelligence_.

3. Regarding being cuddly, from birth and through the first year of life ___ was -
Very cuddly__, Cuddly__, Neither cuddly nor uncuddly__, Uncuddly__, Very uncuddly__.

4. Did _____ like to be held?

5. What parent figures (mother, father, grandmother, non family members etc...) were present in the home during _____'s first two years of life? (If possible name several.
_____
_____
_____

6. During _____'s first two years of life, did these parent figures fight with words?
never_ rarely_ sometimes_ frequently_ continuously_

7. During _____'s first two years of life, did they fight physically?
never_ rarely_ sometimes_ frequently_ continuously_

8. Did _____'s parents separate during ____'s first two years of life?

never_ rarely_ sometimes_ frequently_ continuously_

9. What was their longest period of separation during ___'s first two years of life? ___ months

10. How many out of the first twenty-four months of _____'s life were they separated? ___

11. Who left?

12. Who did _____ stay with when his/her parents separated?

13. How old was _____ when they separated?

14. Was there a divorce? 1_ ? date? _____ ; 2_ ? date?_____...

15. Who left?

16. How old was _____ when they divorced?

17. Who did _____ stay with when his/her parents divorced?

18. Who was the person most involved in this child's care during the first year of life?

19. If the person most involved in this child's care during the first year of life was not one of the above listed parents, who was this person?

20. Who was the person second most involved in this child's care during the first year of life?

21. What was the longest period that this child was separated from the most involved person during his/her first year of life?

22. What was the longest period that this child was separated from the second most involved person during his/her first year of life?

23. _____'s biological mother was how old at the time of this child's birth?

24. Did she drink (alcoholic beverages) during the year before the pregnancy with this child? yes no (circle one)

If yes, please check the number of alcoholic drinks during an average month during the year prior to the pregnancy:

less than 1 _, 1-12 _, 13-59 _, 60 or more.

25. Did she drink during this pregnancy? yes no (circle one)

If yes, please check the number of alcoholic drinks during an average month during the first three months of the pregnancy:

less than 1 _, 1-12 _, 13-59 _, 60 or more.

Second three months of the pregnancy:

less than1 _, 1-12 _, 13-59 _, 60 or more.

Third three months of the pregnangcy:

less than 1 _, 1-12 _, 13-59 _, 60 or more.

26. Did she drink alcoholic beverages during the child's first year of life?

yes no (circle one)

If yes, please check the number of alcoholic drinks during an average month during these periods following birth.

First three months:

less than 1 _, 1-12 _, 13-59 _, 60 or more.

Second three months:

less than 1 _, 1-12 _, 13-59 _, 60 or more.

Third three months:

less than 1 _, 1-12 _, 13-59 _, 60 or more.
Fourth three months:
less than 1 _, 1-12 _, 13-59 _, 60 or more.

27. On the average during the first two years of _____'s life how many drinks per month did ___'s biological mother drink?

less than 1 _, 1-12 _, 13-59 _, 60 or more.

28. On the average how many drinks per month does ___'s biological mother drink now?

less than 1 _, 1-12 _, 13-59 _, 60 or more.

29. Do any of the biological mother's biological relatives have a drinking problem or alcoholism? (Check all that apply.)

Father_, mother, sister (give number) _____, brother(give number)_____, son_, daughter_, father's father_, father's mother_, father's brother_, father's sister_, mother's mother_, mother's father_, mother's sister_, mothers brother_.

30. His/her biological father was how old at the time of _____'s birth?

31. Did he drink (alcoholic beverages) during the year before this pregnancy?

less than 1 _, 1-12 _, 13-59 _, 60 or more.

32. On the average during the first two years of _____'s life how many drinks per month did his/her biological father drink?

less than 1 _, 1-12 _, 13-59 _, 60 or more.

33. On the average how many drinks per month does ___'s biological father drink now?

less than 1 _, 1-12 _, 13-59 _, 60 or more.

34. Do any of the biological father's biological relatives have a drinking problem or alcoholism?

Father_, mother, sister (give number) _____, brother(give number)_____, son_, daughter_, father's father_, father's mother_, father's brother_, father's sister_, mother's mother_, mother's father_, mother's sister_, mothers brother_.

Thankyou for participating in this study.

Appendix D
Informed Consent for Teacher Respondents

Code# _____
Dissertation Research
Utah State University-Department of Psychology

This is to inform you of the purpose of an important research study and to ask for your consent to use your responses in that study. Attached you will find a signed Release of Information form from _____ who is the parent or legal guardian of _____, a student in your class. You will note that that form allows you to participate in this study and releases you and the school district from any legal liability for such participation.

This study will look at certain events in children's early lives and their parents' lives and how these events effect children's behavior and social development. Your responses will be combined with those of other teachers and parents to identify behavioral, social, intellectual, and academic functioning in a group of randomly sampled six to eleven year old children.

As a participant in this study you are asked to complete the Teacher's Report Form of the Child Behavior Checklist. As a teacher you may already be familiar with this standardized instrument and with the fact that it is most useful when filled out thoroughly and insightfully.

The total amount of your time requested is less than thirty minutes. Due to the sampling method used it is very unlikely that any individual teacher will be asked to complete a checklist on more than one child. No teacher will be asked to respond on more than two students.

With the exception of legally required reporting of suspected child abuse or neglect all of your responses will be kept confidential by the researchers on this study. This study does not request any reportable information, but we want you to be informed that should you give such information we must and will report it.

Once the data about an individual child are complete all names and addresses will be coded and separated from your responses and the parent's reponses. Only the researcher will be able to match the two.

You may terminate participation in this study at anytime and without penalty.

The Logan School District research committee has consented to allowing us to contact teachers within the district with the following understandings:

1- Teachers will only be contacted once a signed parental consent form has been obtained. At the time of the interview they will be given a copy of the parental release form (for school records).

2- No teacher will be asked to give information regarding more than two students in his/her class.

3- Teachers have the option to complete the form in a brief interview or to keep the form and fill it out over a couple of days. The interviewer will return and pick up the form at an agreed upon time.

4- Teachers will not be asked to complete the portion of the checklist which requires intelligence and achievement scores. With parental consent, the researcher (Jan Bacon, MSW) will be allowed access to the student files so as to pull this information.

5- Recognizing how busy teachers are, if a given teacher is just too busy to participate he/she may refuse to participate with out penalty.

I, _____, hereby voluntarily agree to participate in the above described research project within the above stated conditions. I understand this includes giving information about one of my students whose parent or guardian has already consented to me providing this information.

I do __, do not __ (check one) wish to receive a brief description of the results of this study.

Signed _____

date _____

School Address

_____

_____

ZIP _____ Phone _____

# RESUME

Jan Garver Bacon, MSW, LCSW, PhD-Candidate

**Home Address:** 1722 North Murray, Wichita, Kansas 67212
**Home Phone:** 316 7219318
**Work Address:** Division of Psychiatry, University of Kansas School of Medicine 1010 North Kansas, Wichita, Kansas 67214
**Work Phone:** 316 2612647

## Education

**A.B.** Elementary Education with concentrations in Psychology and Fine Arts, University of Michigan, Ann Arbor, 1972
**M.S.W.** Concentration in Group Work and field experience in corrections and community mental health, University of Michigan, Ann Arbor, 1976.
**Ph.D.** Candidate, Utah State University in APA Accredited Professional Scientific Psychology Doctoral program. Primary emphasis: Clinical. Secondary emphasis: School. (Dissertation statistics run and writing in progress. Current internship must be completed prior to awarding of degree). Research interest: Strengths and weaknesses of offspring of alcohol consuming parents.

## Licenses and Memberships

Student Member; American Psychological Association.
Licensed Clinical Social Worker; Utah # 1701; Idaho #444 (Clinical and consulting certificates).
Member; National Association of Social Workers (N. Utah Chapter)
Member; International Transactional Analysis Association (Utah chapter)
Former Member Board of Directors; Citizens Against Physical and Sexual Abuse, Logan, Utah.
Former (original) Member Board of Directors; Child and Family Support Center, Logan, Utah.

## Personal Notes

Born 01/20/50 Flint, Michigan. Married, four children (2,4,6,and 9 years old). Good physical and emotional health. Enjoy running, reading, soccer, bicycling, swimming. My marriage partner (Shirley) is interested in completing BSW and MSW in Social Work.

## Employment History

8/88 to 8/89, **Psychology Intern** at University of Kansas School of Medicine - Wichita, Division of Psychiatry. This APA accredited clinical psychology

internship includes inpatient rotations on child, eating disorders, geriatric, and adult treatment units; inpatient family oriented consultation service; and outpatient child guidance service. Psychological and neuropsychological testing as well as individual, marital and group work experiences are included. Heavy emphass is placed on consultation across disciplines and autonomous practitioner skills.

1/83 to 7/88, **Private Practice Clinical Social Work.** Included individual, couple, and group psychotherapy and child custody evaluations. Also included psychological evaluations under the supervision of a Licensed Psychologist. Consultation arrangements exist for medications (Psychiatrist) and psychological examinations (Clinical Psychologist) as needed. Population served included full range of psychosocial disturbances with special emphasis on substance abusers, adolescents, and adult children of alcoholics. Practice was located in Logan, Utah and Preston, Idaho.

1/84 to 10/86, **Coordinator** (half time position), Utah State University Alcohol and Drug Abuse Program. Prevention, education, and treatment work with college students.

1/83 to 7/88, Part time **Instructor** of Social Work and Psychology courses at Utah State University. Titles have included: Theories of Personality, Educational Psychology, Social Welfare and Minorities, Issues in Alcoholism, Adult Children of Alcoholism, Treatment Approaches in Alcoholism, Interpersonal Relations, and Think Tank on Alcoholism. Courses were presented in traditional and non-traditional settings including classes taught over Communications Network (COMNET) and seminar format classes offered on reservation for Native American nontraditional students.

12/85 to 5/86, **School Psychology Examiner.** Under the supervision of a licensed psychologist provided psychological testing and consultation services to Montpelier, Idaho school system.

6/83 to 10/85, **Group Therapist** for Single Parent Personal Counseling and Support Group sponsored by Bear River Association of Governments, Logan, Utah.

1/83 to 9/83, **Foster Parent** in Structured Family Home. Licensed by Utah Division of Family Services to provide three level program for behavior disordered teenage foster daughters in our home.

1983, **Volunteer** group therapist with Parents United, Logan, Utah.

9/79 to 11/82, **Chief Social Worker** with Indian Health Service at Parker, Arizona. Supervisor- David Morgan. Served five different Indian tribes within the service unit. Administrative, program development, staff development,consultation, policy development, direct service provision were all part of the task. Project officer for three IHS contracts totaling over 200,000 dollars.

6/78 to 10/79, **Psychiatric Social Worker (Mental Health Specialist)** with Indian Health Service, Rocky Boy Agency, Box Elder, Montana. Supervisor: Duane Jeannotte. Programmatic and service delivery responsibilities for all mental health services on this reservation. Individual, couples, and group psychotherapy used. Supervised patients on anti psychotic medications. Help dependent patients to find in community living arrangements. Worked with traditional Indian healers on occasion in conjunction with more conventional treatment methodologies. Group therapy with alcohol rehabilitation clients (patterned after 12 step AA approach).

7/76 to 6/78, **Psychiatric Social Worker** with Veterans Administration Hospital,. Ann Arbor MIchigan. Supervisors: Roderick Fitch. ACSW, Chief of Social Work Department and Philip R. Kroll, MD, assistant Chief of Psychiatry. Group Therapy for inpatients in six week medical/social detox alcohol treatment program. Conjoint, family, individual, marital group therapies for outpatients, spouses and families. Student supervision for BS, BA, and MSW students from University of Michigan. Although patients all had admitting diagnoses of alcoholism, secondary and tertiary diagnoses represented the full range of emotional and psychiatric problems. One of the main tasks of the treatment team was to tailor treatment plans to fit the individuals' needs.

2/74 to 9/75, **Casemanager** with the Federal Bureau of Prisons, Federal Correctional Institution, Milan, Michigan. Supervisor- Mark Glesener, MSW. Program design and implementation using treatment team approach on 100 man unit comprised of married male inmates (18-26 years of age). Used casework as well as training and treatment group techniques. Served as liaison with US Probation Officers. Presented cases before US Board of Parole (Examiners). Gave informational presentations at community agencies regarding treatment approaches in corrections. Established first counseling groups for spouses of inmates and subsequently for inmates and their spouses in the same group. Acting Unit Manager on several occasions.

9/72 to 2/74, **Teacher/Education Advisor** at Milan Federal Correctional Institution. Supervisor- William Anthony. Taught Adult Basic Education and GED. Created and supervised inmate to inmate course mart tutorial program. Educational

Representative on treatment teams for as many as 400 inmates (caseload). Teams designed academic, career, and counseling goals with inmates.

Before 9/72, Teaching experience: **Teaching Assistant** to James V. McConnell Ph.D. , University of Michigan, in Behavioral Psychology courses and lab.
**Teaching Assistant,** Washtenaw County Headstart, Ann Arbor, Michigan.
**Substitute Teacher**, Inkster and Ypsilanti, Michigan.

**Recent References**

**D. Ann Vaughan, M.D., Psychiatrist, Professor,** Division of Psychiatry, University of Kansas School of Medicine- Wichita, 1010 North Kansas, Wichita, Kansas 67214. 1 316 2612647.
**Glenn Veenstra, Ph.D., Associate Professor,** Division of Psychiatry, University of Kansas School of Medicine- Wichita, 1010 North Kansas, Wichita, Kansas 67214. 1 316 2612647.
**William R. Dobson, PhD, Professor,** Department of Psychology, Utah State University, Logan, Utah, 84321. 1 801 7501460.
**Phyllis Cole, Ph. D., Associate Professor,** Coordinator, Clinical Services, Developmental Center for Handicapped Persons, Utah State University, Logan, Utah 84321. 1 801 7501989.

**Past References**

**Curtis R. Canning, M.D., Psychiatrist,** 91 West 200 North, Logan, Utah 84321. 1 801 7530272.
**David Morgan, Service Unit Director,** Colorado River Service Unit, Indian Health Service, Parker, Arizona 85344. 1 602 6692137
**Roderick Fitch, ACSW, Chief of Social Work,** Veteran's Administration Hospital, 2215 Fuller Road, Ann Arbor, Michigan 48105. 1 313 7697100
**Margene Tower, Area Mental Health Consultant,** Indian Health Service Area Office, Billings, Montana. 1 406 6576172

**Feel free to contact any previous or current employer as well as the above references.**

signed_____date____
**Jan Garver Bacon, MSW, LCSW, PhD (Candidate)**